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A Description and Critique of Soil and Water Conservation Programs in Washington County, Wisconsin

Wisconsin Board of Soil and Water Conservation Districts, Madison

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This study focuses on evaluating the effectiveness of the soil and water conservation programs in meeting their mandate to control erosion on agricultural lands. The evaluation framework is established by describing the legislative mandates and operational procedures followed by each program. Consideration is given to both the horizontal linkages between the programs of different agencies and to the intra-agency linkages between the establishment of program objectives, planning and implementation strategies.

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by

Steven J. Berkowitz
Robert R. Schneider
Water Resources Center
University of Wisconsin-Madison

Grant Number G005139

Ralph G. Christensen
Section 108(a) Program

Carl D. Wilson
Project Officer

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U.S. Environmental Protection Agency
Great Lakes National Program Office
536 South Clark Street, Room 932
Chicago, Illinois 60605

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A DESCRIPTION AND CRITIQUE OF SOIL AND WATER CONSERVATION PROGRAMS IN WASHINGTON COUNTY, WISCONSIN

Abstract

A detailed study of the structure and recent accomplishments of the Soil and Water Conservation District, Soil Conservation Service and Agricultural Stabilization and Conservation Service programs in Washington County, Wisconsin, is presented. These soil and water conservation programs, underway since the 1930's, have gained an added mandate in the 1970's--control of nonpoint source pollution. This paper focuses on evaluating the effectiveness of these programs in meeting their mandate to control erosion on agricultural lands. The evaluation framework is established by describing the legislative mandates and operational procedures followed by each program. Consideration is given to both the horizontal linkages between the programs of different agencies and to the intra-agency linkages between the establishment of program objectives, planning and implementation strategies. Ten years of data are analyzed on the allocation of technical assistance, manpower, cost sharing expenditures and program accomplishments. From this information, specific limitations of the past soil and water conservation programs are highlighted and ways identified in which programs might be improved in order to ensure their increased effectiveness under an expanded set of responsibilities.

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1. INTRODUCTION

Most soil and water conservation programs in operation today have been underway since the 1930's. The most important programs are administered locally by the county Soil and Water Conservation District (SWCD), the U.S. Soil Conservation Service (SCS), the U.S. Agricultural Stabilization and Conservation Service (ASCS), and the cooperative Extension Service. These programs have been concerned historically with protecting and enhancing agricultural productivity through the control of soil erosion and are credited with playing an important role in the recovery from the depression and dustbowl eras. In the 1970's, however, a new dimension has been added to the conservation program's mandate, i.e., control of water pollution that results from land use activities or "nonpoint source (NPS) pollution". The success of the nation in reaching the goal of "fishable-swimmable" water quality by 1983 (1) depends on the degree to which water quality objectives can be incorporated into present conservation programs.

This paper presents the findings of a detailed study of the structure and recent accomplishments of the SWCD, SCS and ASCS programs in Washington County, Wisconsin. Dairy farming is still the dominant land use in Washington County, which is situated northwest of the Milwaukee metropolitan area, although the land area devoted to cash cropping and urban development is expanding rapidly. This research is part of a comprehensive study of NPS pollution problems and alternative control strategies in Washington County, funded by the U.S. Environmental Protection Agency. The programs of University of Wisconsin-Extension--though important--are not discussed because they are being evaluated separately by Washington County Project personnel. The primary objective of the study is to identify ways in which programs might be improved in order to ensure their effectiveness under an expanded set of responsibilities.

While we recognize the danger of generalizing from a single case study, it is felt nevertheless that the Washington County experience with these programs is not unique and that its documentation illuminates the important institutional problems which must be addressed by those involved in conservation program evaluation and development.

A variety of information sources have been utilized in this study (Appendix A). Agency mandates were derived from the relevant laws and other clarifying documents. Program effectiveness was determined from detailed analysis of land use and management inventories and agency accomplishment data. This included information concerning:

A. The procedures used by each agency to gather information, specify priorities and implement programs.

B. The interagency linkages which influence how each agency perceives its mission.

2. CONCLUSIONS AND IMPLICATIONS

The objective of the study was to consider the detailed structure and operation of the principal soil and water conservation programs in Washington County. The evaluation has focused on the effectiveness of these programs in meeting their mandate to control erosion on agricultural lands.

Despite extensive past program accomplishments, farmland erosion is still a serious problem in Washington County, and there is no indication that the situation has been improved in recent years. On the contrary, it appears that the situation is becoming more serious. Findings seem to indicate, however, that only a small portion of the land has excessive erosion rates. In Washington County, only 17% of the cropland has soil loss rates >3 tons/acre/yr (5.4 Tonnes/ha/yr) and the largest sources of soil loss can be narrowed down even further. Thus, the primary concern is how these critical areas can be better identified and programs better focused towards meeting each area's specific needs. In principle, only minor, though essential, adjustments are needed to improve substantially program results, and it is not inferred that massive new programs, agencies and directives are needed. It is recognized that the existing operational procedures and agency interrelationships result from years of evolution, and cannot be expected to change overnight. It is encouraging to note, however, that agency programs are being redirected, but it is too early to evaluate these changes.

Some specific limitations of the past soil and water conservation programs in Washington County and recommended improvements are summarized below:

A. Better information is needed concerning the use and management of lands with potential problems. The soil survey provides a good indication of an area's problem potential, but only a survey of 2% of the land completed in 1977 provides any detailed information on how problem areas are managed. A survey procedure which involves field checking areas with potential problems could facilitate problem identification.

B. The SCS "99-Report", meant to quantify the amount of practices currently on the land, has not been compiled accurately, mainly because practices removed are inadequately accounted for. Breakdown of the distribution of practices by problem area categories do not exist, e.g. soil capability class or slope class.

Regular field-checks of past practices installed through agency efforts should be made. Surveys like that suggested in Conclusion A should enumerate the coverage of different practices in the problem areas. Use of the Census of Agriculture to collect data on management practices should be reconsidered. Aerial photographs also might provide a simple mechanism of quantifying the

amounts and changes in certain practices, such as stripcropping.

C. Some past surveys, such as the Conservation Needs Inventory (CNI), have tended to yield inflated estimates of treatment needs. This has been due to both the multiplicity of program objectives and to the subjective nature of decisions concerning the desired levels of treatment.

Surveys of future needs should be tied closely to quantifiable, uniform and replicable measures of the problems, and with the determination of treatment needs made in accordance with clearly specified objectives.

D. Neither the SWCD Long-Range nor the Annual Planning process has yet been effectively utilized to establish the district's authority over program policy within its jurisdiction. Neither sufficiently acknowledges past program deficiencies, quantifies treatment needs, prioritizes a sequence of objectives, nor specifies where needs are the greatest within the district. This has resulted in implementation efforts that are often inconsistent with district policy.

The Long-Range and Annual plans should 1. draw directly upon the latest available surveys of problems and treatment needs, 2. specify the priority with which problems will receive attention, and 3. specify what methods will be used to achieve these objectives, how staff requirements will be met, how funding will be provided, and how program elements will be coordinated and evaluated. Additionally, the Annual Program should be developed before the SCS's Annual Plan of Operations and the County Budget are completed in the fall, and should contain sufficient information to enable the allocation of SCS and County funds and technical staff-time.

E. The allocation of ACP funds among counties has not been tied effectively to the severity of needs for specific practices. Many of the newer ACP practices, e.g., grass waterways and minimum tillage, were not considered directly in the 1967 CNI and priority ranking among counties has been based solely on amount of croplands. An estimate of the needs for these newer practices could be based on past estimates of needs for similar practices, e.g., grass waterway priorities could be based on assessed needs for stripcropping, diversions and terraces in the 1967 CNI.

F. The SWCD has not yet taken full advantage of its advisory responsibility to the ASC Committee during the preparation and implementation of the Annual ACP Program.

The SWCD and ASC Committees should develop a stronger commitment to cooperation. The ACP Program should complement and help implement the District's Annual Program. Consideration might be given to having each ACP application sent to the SWCD for review and recommendations before the ASC makes its final decisions.

G. Too much SWCD/SCS staff time--relative to accomplishments--has been devoted to preparing traditional farm conservation plans. This, in part, has been responsible for limiting the amount of effort used in identifying and assisting landowners with high priority problems.

A streamlined, problem-oriented planning process should be developed which identifies only those practices most critically needed. District and SCS staff should seek out individuals needing such plans and encourage their cooperation. The priority followed in completing plans should be based on comparative need. Overseeing such a revised planning process ideally would be the responsibility of SWCD personnel.

H. The actual distribution of SWCD/SCS technical assistance effort has deviated significantly from that required just to meet assessed treatment needs and established district objectives. In particular, the effort expended to implement drainage practices has limited the amount of time that has been available to implement high priority practices. In addition, those practices which have been implemented are not concentrated in areas of greatest need.

The District must more effectively define its objectives and encourage the SCS and ASC Committee to follow the objectives more closely. The district might consider developing its own technical staff whose activities would be directed by its supervisors.

I. The real value of ACP support has been decreasing continually. Substantially fewer people received ACP incentives in 1977 than in 1968. The program also has suffered from the many fluctuations it has undergone in recent years. This has made it difficult to plan ahead or to generate support for programs, e.g., the Long-Term Agreement (LTA) program, which depend on funding over a number of seasons.

It is unlikely that ACP appropriations will be increased or that the program will stabilize. Thus, the importance of careful spending is heightened. State and county cost-sharing programs undoubtedly are needed to supplement the ACP.

J. ACP expenditures on low priority but highly popular practices have, in part, been responsible for reducing the relative accomplishments of the more important erosion control and vegetative cover practices. This situadid improve greatly during the 1977 program year.

As described in Conclusion F, the SWCD should play a greater role in development and implementation of the ACP, particularly in light of the large portion of technical assistance time required to implement ACP-supported practices. Also, consideration should be given to once again permitting states to withhold a certain amount of funds from the counties to use as an incentive for the adoption of specified practices. This type of approach may be essential to enable counties to implement practices such as streambank fencing, and programs such as the LTA.

While the major emphasis of this analysis has been on meeting cropland erosion control objectives, many of the findings have direct implications for the institutional changes needed to effectively achieve NPS pollution control objectives. The success of the action agencies depends on how well they can define their objectives, identify problem areas and focus their efforts on the worst problems.

An underlying premise of this discussion has been that existing programs will likely remain the major tools by which old and new conservation objectives will be addressed. It is possible that new state and federal legislation could alter agency authority and interrelationships. In particular, the addition of a regulatory component undoubtedly would change program structures. Any new arrangements must build upon and be influenced by existing conditions.

Regardless of future uncertainties, it is essential that strong steps be taken to overcome past limitations, eliminate program inconsistencies, accept the need for change, and get on with the job.

3. AGENCY MANDATES

The mandate of each agency is established formally by its enabling legislation. Over time, these mandates become to some extent operationally modified by the ways in which agencies become accustomed to interpreting their program objectives. As shown later each of the agencies analyzed has powers which extend quite broadly into areas of conservation and environmental protection. Yet not until the last few years has water quality improvement and protection become recognized as priorities.

Soil and Water Conservation Districts

The Soil and Water Conservation District (SWCD or district) has traditionally been the governmental unit with responsibility for local coordination of conservation programs. Districts have been established in each of the 72 counties, by a resolution of the County Board under the authority of Chapter 92 of the Wisconsin Statutes. They are governed by a committee which consists of the Agriculture and Extension Education committee of the County Board and up to two appointed non-board members. Each district's primary responsibility is to plan and carry out a county-wide program of assistance to assure the good stewardship of land, water and related resources.

Soil Conservation Service

The U.S. Soil Conservation Service (SCS) was created by the Soil Conservation Act of 1935. Its mandate is to carry out a broad program of assistance to farmers and other landowners and to cooperate with and assist the SWCD in conserving and improving soil, water, vegetation, wildlife, and related resources. Local SCS offices have been established in nearly every SWCD, subsequent to the District's formation and the signing of a Memorandum of Understanding between the District and SCS.

The Clean Water Act of 1977 explicitly gives the SCS and SWCD important responsibilities in the implementation of water quality enhancement programs (2).

Agricultural Stabilization and Conservation Service

The U.S. Agricultural Stabilization and Conservation Service (ASCS) administers the Agricultural Conservation Program (ACP), which until recently

has been the only large-scale government cost-sharing program supporting voluntary implementation of a variety of approved conservation practices on farms. The ACP has been providing cost-sharing dollars directly to farmers since the passage of the Domestic Allotment and Agricultural Adjustment Act in 1936.

The principal objective of the ACP is to help to "maintain the productive capacity of American agriculture" (3), by reducing "the loss of agricultural soil, water, woodland, or wildlife resources and to prevent agricultural-related pollution of water, land and air" (4). Practices to be approved for cost-sharing are those deemed necessary to meet program objectives which would not be accomplished without federal assistance.

The Food and Agriculture Act of 1977 further directs the ACP to consider "the need to encourage voluntary compliance by agricultural producers with Federal and State requirements to solve point and nonpoint sources of pollution", and to promote those "conservation measures needed to improve water quality in rural America" (5).

4. PROGRAM ADMINISTRATIVE STRUCTURE

The administrative structure of the SWCD, SCS and ASCS at the county level is obviously an important determinant of the nature and extent of agency programs.

SWCD and SCS Administration

The Washington County SWCD is governed by the five members of the Agriculture and Extension Education Committee of the County Board. The County Board has chosen not to appoint any additional nonboard members as District Supervisors. District and SCS employees share an office in West Bend under the direct supervision of the SCS District Conservationist (DC). Personnel include two technicians (one SCS and one District-hired), a conservation aid during the summer (Comprehensive Employee Training Act employee) and a part-time clerk (District-hired). The DC is involved primarily in administration and farm planning. The conservation aide and the technicians perform in-the-field assistance by designing and implementing conservation practices. The Washington County SWCD in 1978 hired a full-time County Conservationist, who assumed technical and administrative responsibilities for the supervisors.

ACP Administration

The ACP is administered by the Agricultural Stabilization and Conservation (ASC) County Committee. Three farmers in the county are appointed as sole voting members of the committee by delegates to "community committees" elected by farmers from designated agricultural districts in the county. The ASC County Committee employs a professional staff which--in Washington County--includes the county executive director, a full-time office manager, and a part-time employee.

5. OPERATIONAL PROCEDURES

SWCD and SCS Programs

Although both agencies have some responsibilities which do not overlap, nearly all past involvement in conservation programs in Washington County (and most other counties) has been undertaken jointly. The interaction between the SWCD and SCS has had a tremendous impact on the design and implementation of existing programs. This relationship must be evaluated carefully to assess its role in new or redirected programs.

The SWCD and SCS jointly administer three major tasks: 1. developing the district resource conservation program, 2. conservation planning, and 3. providing technical assistance to landowners, local units of government, and community and business groups.

The District Resources Conservation Program

The overall program is guided by a two-tiered planning process--long-range and annual. The long-range plan is to serve as a general guideline for district activities while a basis for the specific programs is defined by the annual work program.

The long range resource conservation program for Washington County was updated in 1976. Four subcommittees consisting of about 40 people were involved, including committees on agricultural and natural resources; rural and urban development; wildlife, forestry and conservation; and education and public relations. The new program sets forth the policies of the Washington County SWCD and its program objectives. In addition it includes an inventory of the county's natural resources and a review of resource problems. An important objective adopted is to identify "water pollution problems resulting from livestock and cropping practices (and) evaluate these problems and assign priorities for technical assistance" (6).

The district's annual planning process revolves around an annual meeting during which the long-range program is reviewed and, if necessary, revised. Program accomplishments for the past year are assessed and an annual work plan is developed which establishes district objectives for the following year. A detailed breakdown of how staff time will be allocated to carry out the district's programs is included in an annual plan of operations (APO) prepared by the SCS District Conservationist. According to a Memorandum of Understanding between the SCS and the Washington County SWCD (similar to those signed nationwide): "SCS assistance will be allocated in accordance with an

annual plan of operations prepared by SCS in consultation with the District and based upon the District's annual work plan." Furthermore: "The District's annual work plan, . . ., will include whatever information SCS needs for preparing its annual plan of operations." Excerpts from the Washington County SWCD 1978 Annual Work Plan and the SCS APO for FY 1978 are presented in Appendix B.

Finally, a key component of the district's annual planning is the development of its annual operating budget. This is prepared during the summer in conjunction with the complete county budget. At this time projects are defined, work priorities established, and materials, personnel and funds allocated.

Conservation Planning and Technical Assistance

Conservation planning and the provision of technical assistance services are the main activities of SWCD and SCS staff directed toward carrying out District programs. As specified in the Memorandum of Understanding between SCS and the Washington County SWCD: "The District will (a) adopt a procedure for the orderly and progressive development and application of conservation and resource development plans for farms, communities, watersheds, and other land units, (b) be responsible for determining the recipients of services provided by the District and for setting priorities for the kind and amounts of work to be performed in the District, and (c) develop a systematic method for group and individual follow-up work essential to carrying out of conservation and resource development plans."

In the past, the planning program has been centered on the preparation of "farm conservation plans" by SCS. These plans include a detailed look at the total resource capabilities and management needs of the property and recommend changes to be carried out during successive years. Soil erosion, drainage needs, woodland productivity, and wildlife habitat development are among the items considered. SCS guidelines call for updating every 5 yr plan that has become obsolete.

Landowners must sign a formal written cooperative agreement with the SWCD, i.e., become "District Cooperators" to be eligible to receive assistance from SCS personnel in developing or carrying out these comprehensive farm plans (7). While SWCD cooperation and farm-conservation plans are encouraged, they are not prerequisite to receiving planning or technical assistance. In fact, an estimated 60 to 75% of the technical services provided by the Washington County SWCD and SCS staff are for non-SWCD cooperators. Less formal planning and assistance have been termed "inventories and evaluations," which SWCD and SCS staff perform primarily for non-SWCD cooperators. These normally involve single-problem studies such as developing and presenting alternatives for the construction of a commonly-used drainage channel for a group of farmers. In addition to their SWCD commitments, the SCS staff also is responsible for most of the technical aspects of the ASCS cost-sharing program; District cooperator status also is not a prerequisite to participation in the ACP.

Planning and technical aid to non-farm landowners and local units of

government or agencies are becoming more important functions of SWCD and SCS, e.g., recommendations are offered to home builders on the suitability of sites for septic systems. Assistance provided to units of government includes review of plats for the adequacy of their erosion and drainage control provisions, assessment of septic tank suitability, and aid in drafting plans, regulations and standards to control erosion. This type of planning assistance is becoming increasingly important as a mechanism for meeting the needs inherent to rapidly growing, changing communities.

The Agricultural Conservation Program

The process by which ACP funds are transferred to farmers begins each year with the passage of the appropriation bill in Congress. The appropriation for each stage, determination of which conservation practices are to be eligible for cost-sharing, and what guidelines will be used by states and counties to determine their priorities and to approve cost-sharing applications are decided at the national level. Funds have been distributed to states primarily on the basis of past funding levels and the state's comparative "conservation needs," as reported in the most recent CNI, e.g., Wisconsin's needs for the past 10 years have been determined, in part, from the 1967 CNI, described in Appendix A.

The State Development group, which includes the State ASC Committee and ASCS State Executive Director, and representatives of the SCS, Wisconsin Department of Natural Resources (DNR), State Board of Soil and Water Conservation Districts (BSWCD), Wisconsin Department of Agriculture, Trade and Consumer Protection, University of Wisconsin-Extension, and University Departments of Soil Science and Agricultural Engineering draw up the state program. Only voting members of the State ASC Committee have decision-making authority. The major statewide decision is allocation of funds to each county. The formula used currently in Wisconsin considers:

A. Practice priorities established by the State Committee.

B. The relative needs for each practice by each county, based on:

   1. a comprehensive needs inventory (1967 CNI),

   2. length of streams and a streambank erodibility index, and

   3. total cropland acreage (single most important factor);

C. The county's allocation used the previous year.

See Appendix C for details of county allocation calculations and an example of the relative needs factors used for Washington County.

Once the total annual allocation is established, the County ASC Committee has a great deal of flexibility on disbursement of the money. A County Development meeting is called and the participants normally include ASC Committee members, the ASCS County Executive Director, an SWCD Supervisor,

SCS and DNR representatives, and the County Extension Agent. The County Program is approved typically by concensus of the group (only the ASC County Committee has actual authority). The Program consists of the establishment of objectives, eligible practices, technical guidelines, and cost-sharing rates. These decisions are subject only to national standards (generally no state-level controls exist). A copy of the 1977 ACP Washington County Program appears in Appendix D.

All farmers in the county are eligible to apply annually for cost-sharing funds. "An eligible person is a farmer or rancher who, as an individual, partnership, association, corporation, estate, trust, or other business enterprise, or other legal entity. . .and, as an owner, landlord, tenant, or sharecropper, participates in the operation of a farm or ranch" (4). SWCD cooperator status is not required; roughly 40% of the ACP participants in Washington County each year are non-cooperators. Until 1978, an individual could receive a maximum of $2500 in a given year and the federal government's share normally ranged from 50 to 75% of total cost. A range of 30 to 80% is now permissible and the $2500 limit has been removed. The farmer's share can be paid in part by in-kind services during practice installation.

Rather than apply individually, a group of farmers can request funding to control such problems as streambank and hillside erosion. When part of an approved "pooling agreement," each participant can receive up to $10,000/yr. Outdoor and conservation clubs have often encouraged such group projects by paying the farmers' share of the costs.

The three farmer members of the County ASC Committee have complete responsibility for deciding who will receive the funds.

Coordination between ACP and SWCD programs is provided for through a Memorandum of Understanding. Each group involves the other in their respective annual planning and program development meetings. The County ASC Committee is directed to "consider the District's long-range objectives and annual work plan in developing its county plan" (8).

The Long-Term Agreement Program

The Long-Term Agreement (LTA) program was started on a trial basis in 1974. This unique program combines planning, implementation, and cost-sharing components of the SWCD, SCS and ASCS soil and water conservation programs. The farmer signs a binding 3 to 10 yr contract with the County ASC Committee, agreeing to follow a comprehensive SWCD-approved conservation plan in return for a guaranteed committment of cost-sharing funds from ASCS and technical assistance from SCS and the District. The LTA conservation plan calls for meeting conservation needs on the entire farm within the contract period.

6. EVALUATION OF PROGRAM IMPLEMENTATION PROCEDURES

Presented thus far has been a description of the structure and working relationships of Washington County agencies charged with administration of soil and water conservation programs. With this background the extent to which agencies are accomplishing their stated objectives can be evaluated. It has already been pointed out that NPS pollution abatement has not--until recently--become an accepted program objective. Therefore, it would be improper to pass judgemnt at this early date on how well NPS pollution control, *per se*, has been addressed. Erosion control, albeit in the interest of maintaining soil productivity, has been the most important mandate of these programs. Therefore, this evaluation focuses on the erosion control effort. The discussion follows the sequence of implementation steps more or less followed by the conservation programs and includes:

A. Needs assessment

B. Priority setting

C. Program implementation

Each step is analyzed in terms of its importance, the agencies involved, and how it has been performed historically. In particular, the identification and analysis of the linkages between the implementation steps is stressed because this shows the greatest promise for improving existing programs.

Assessing Treatment Needs

The ability to direct program efforts to places where they are most needed is related closely to the availability of sound information concerning the present state of land treatment. A wide range of data sources is available. While some of the individual sources are thorough, as shown later, some of the most critical linkages between different kinds of information are poorly developed, thereby limiting the reliability of current treatment needs assessments.

The County Soil Survey provides the most detailed information available on problem potential. Large scale maps delineate soil series throughout the county. Each soil type is further categorized into "capability classes." The soils capability system was designed primarily to indicate factors that might limit crop production. However, the same factors often determine the likelihood of erosion occurring. Data from the Washington County soil survey indicate that roughly 25% of the county (70,000 acres = 28,330 ha) has severe erosion potential, while 33% (90,000 acres = 36,420 ha) has moderate erosion

potential (9).

Land use and management--rotations, plowing methods, and conservation practices employed--determine whether a potential erosion problem is actually realized. Extensive data on cropland use are available from the Assessor's Farm Statistics, published annually by the Wisconsin Statistical Reporting Service. The amount of land planted in major crop types for Washington County from 1965 to 1976 is shown in Appendix E. Unfortunately, the critical information concerning the proportion of these different types of crops located on problem soils, or the management practices being employed, is not typically available.

Some methods, however, have been in use in District and SCS offices to attempt to provide this key information. The CNI was designed, in part, to serve as the basis for establishing program priorities. Developed by the USDA in the mid 1950's for nationwide application, the CNI involves a stratified random survey of approximately 2% of the land in each county and is undertaken usually by personnel responsible to the SCS District Conservationist. In Washington County there are 36 quarter-section CNI plots. For each plot surveyed, data are collected on soils, slopes, land use and management practices. Information is also collected on the amount of "land adequately treated." For lands needing treatment, the surveyor recommends the extent of need within specific classes of practices, e.g., stripcropping, terraces and diversions; drainage. The last published inventory was made in 1967. The needs derived for Washington County at that time are shown in Table 1.

This needs assessment is regularly updated by the "99-Report." To be completed annually by the SCS District Conservationist, the 99-Report is intended to provide detailed information on the cumulative number and extent of all conservation practices on the land and to indicate the total amount of "adequately treated" land in the county. In theory, for a given year's report, the DC will add or subtract from the previous year's level all treatments added or removed in the county during that year. This should include all SWCD/SCS-supervised work (which also covers nearly all ASCS cost-sharing work) plus private activities that comply with SCS technical standards. Data from the Washington County 1975-1976 99-Report are shown in Appendix F. Based on the 99-Report information, the Washington County DC reported "treatment needs" as having decreased to 95,271 acres (38,556 ha) by 1975 from the 123,051 acres (49,800 ha) derived by the 1967 CNI.

Further analysis reveals that the CNI and 99-Reports that exist cannot be relied upon to properly guide county soil and water conservation programs. The CNI is limited primarily because it includes such a small percentage of the county land area. Another difficulty with the CNI is the uncertainty regarding the the criteria used to determine "treatment adequacy." The variety of practice needs identified in Table 1 reflects the range in program objectives at this time. Generally speaking, nearly all problems which tend to reduce agricultural productivity appear to have been accounted for. This results in the very high number derived for "land needing treatment"--over 90,000 acres (36,240 ha), including 65% of the county's cropland.

The only objective criterion which has been proposed to define treatment adequacy is to determine whether the average annual soil loss rate, as

Table 1. Conservation Needs Inventory results for Washington County in 1967*

Practice category and practice needed	Area needing treatment		
	Acres	Ha	%
Direct erosion control	58,967	23,867	51
Contouring only	18,624	7,537	
Stripcropping, terraces and diversions	40,352	16,330	
Vegetative cover	30,087	12,176	26
Residue and annual cover	10,999	4,451	
Sod in rotation	5,114	2,070	
Permanent cover	5,661	2,291	
Pasture improvement	8,313	3,364	
Woodlands	14,522	5,877	13
Establishment and reinforcement	8,714	3,527	
Stand improvement	4,995	2,021	
Livestock exclusion only	813	329	
Drainage	12,223	4,947	10
TOTAL	115,808	46,867	100

*Wisconsin Conservation Needs Committee, 1970, Wisconsin Conservation Needs Inventory for 1967.

estimated by the Universal Soil Loss Equation (USLE)(10), is below a prescribed tolerable limit. Tolerable soil loss rates have been adopted by SCS for each soil to represent the maximum rate of erosion permissible before there is likely to be a decline in crop productivity. Tolerable rates range from 2 to 6 tons/acre/yr (3.6 to 10.7 Tonnes/ha/yr) for most Wisconsin soils. Unfortunately, the data collected during the 1967 CNI were insufficient to permit a direct computation of soil loss by USLE. However, another 2% survey completed in 1977 (see later) did secure the necessary information. Analysis of these data leads to some interesting conclusions that indirectly pertain to the 1967 CNI. Based on the 1977 survey, only 17% of Washington County's croplands, about 20,000 acres (8100 ha), currently have soil loss rates that exceed a 3 tons/acre/yr (5.4 Tonnes/ha/yr) limit. The "land needing treatment" category in 1967 (including over 90,000 acres (36,420 ha) obviously included more than lands with soil losses above tolerable levels. The amount of conservation work accomplished between 1967 and 1977 could not account for this large discrepancy. On the contrary, the increasing proportion of corn in rotations in recent years (see Appendix E) has undoubtedly led to a worsening of the erosion problem below 1967 standards. Further substantiation of this is provided later. Overestimation of the problem makes it extremely difficult to focus programs on those areas most in need of treatment.

The 99-Report has its own series of deficiencies which render it difficult to apply effectively. The most significant problem is the apparent overestimates of the cumulative amounts of certain key practices on the land. It seems that only rarely are practice removals actually subtracted from cumulative totals. In the 6 yrs of 99-Reports analyzed for Washington County, in only one instance was the amount of a given practice on the land reported to be less than in a previous year--in the 1970-1975 reports, 51,500 ft (15,700 m) of terracing were reported to be on the land while no terracing was reported in the 1975-76 report. Thus it took several years to acknowledge that old terrace work had been removed in the county. Further direct verification that practice removals are not accurately assessed in 99-Reports is provided by comparison with U.S. Census of Agriculture data. The Census for 1959, 1964, and 1969 included figures on total area under stripcropping; unfortunately, this information was not collected by surveyors for the 1974 Census. According to the Census, the amount of stripcropped land decreased from 7293 to 5328 acres (2951 to 2156 ha) between 1964 and 1969 in Washington County. Yet the 99-Report for 1970-71 showed 12,169 acres. The reason for such poor estimates of practice removal stems from the lack of a mechanism for following up on the fate of implemented practices once they have been established. This is true whether the practices were established with or without SWCD, SCS and ASCS assistance.

As mentioned earlier, an update of the CNI was completed in 1977. During 1976-77 the BSWCD, county SWCD, SCS, and DNR cooperated to make this revised inventory a part of the statewide 208 NPS water pollution control planning process. The "208-2% survey" was not a complete CNI, but utilized the 1967 CNI plots. Information collected pertains directly to assessing NPS pollution problems from erosion and animal wastes. Results of the animal waste survey have been evaluated in detail by other members of the Washington County Project staff (11). Soil loss information derived from this survey could help serve as an initial guide for erosion control programs in the future. Estimates of average

annual soil loss rates were made for surveyed cropland areas in 6 southeastern Wisconsin counties, using the USLE. Due to the small portion of land sampled, these findings must be interpreted with caution--of the 120,000 acres (48,560 ha) of harvested cropland in Washington County, 2900 acres (1175 ha) were analyzed in the 36 quarter-sections sampled. Nevertheless, the survey provides the best information available on the management of lands of high erosion potential and helps to identify the major sediment-contributing areas. The most significant finding was that in all counties analyzed, a relatively small portion of the surveyed croplands accounts for a large portion of the total cropland soil loss (Fig 1): about 50% of the soil loss comes from 10-20% of the cropland.

Results from Washington County were analyzed in detail in order to characterize more precisely the nature of the major sediment contributing areas. The results are not surprising. The 21% of the cropland on slopes > 6% contributes 57% of the total cropland soil loss. Furthermore, fields that are on only 12% of the surveyed cropland area accounted for 40% of the soil loss. In fact, one 20-acre (8.1 ha) field of the 146 surveyed accounted for nearly 20% of the total soil loss from the surveyed cropland, with an average soil loss of 62 tons/acre/yr (111 Tonnes/ha/yr).

The 2% Survey cannot be used to identify specific portions of the county needing more intensive treatment, but survey results indicate that a program focused on the control of cropland erosion from those relatively few areas with slopes greater than 6% under a continuous corn system, or which are plowed up and down slope, could significantly reduce soil losses in the county.

Since the 1977 2% Survey utilized the same sample plots as did the 1967 CNI, a direct comparison of needs with accomplishments is possible. Of the 84 fields determined to need erosion control or permanent cover in 1967, only 5 have been treated by 1977. Thus, while the 1967 CNI may have overstated conservation needs, there is little indication that any real progress in solving erosion problems has been made.

Additional 2% Survey results for Washington County croplands are shown in Appendix G.

Setting Priorities

Program objectives must be translated into specific priorities which can directly guide implementation efforts. Priority-setting procedures which have been used by SWCD, SCS and ASCS programs in Washington County will be assessed. The main basis for comparison is data from the 1967 (CNI) (Table 1), which provides the most recent quantifications of needs for meeting program objectives. While objectives have changed since 1967, these changes have not, as yet, been articulated in terms of specific practice needs. It is still worthwhile to consider the linkages between established program priorities and treatment needs based solely on past program mandates.

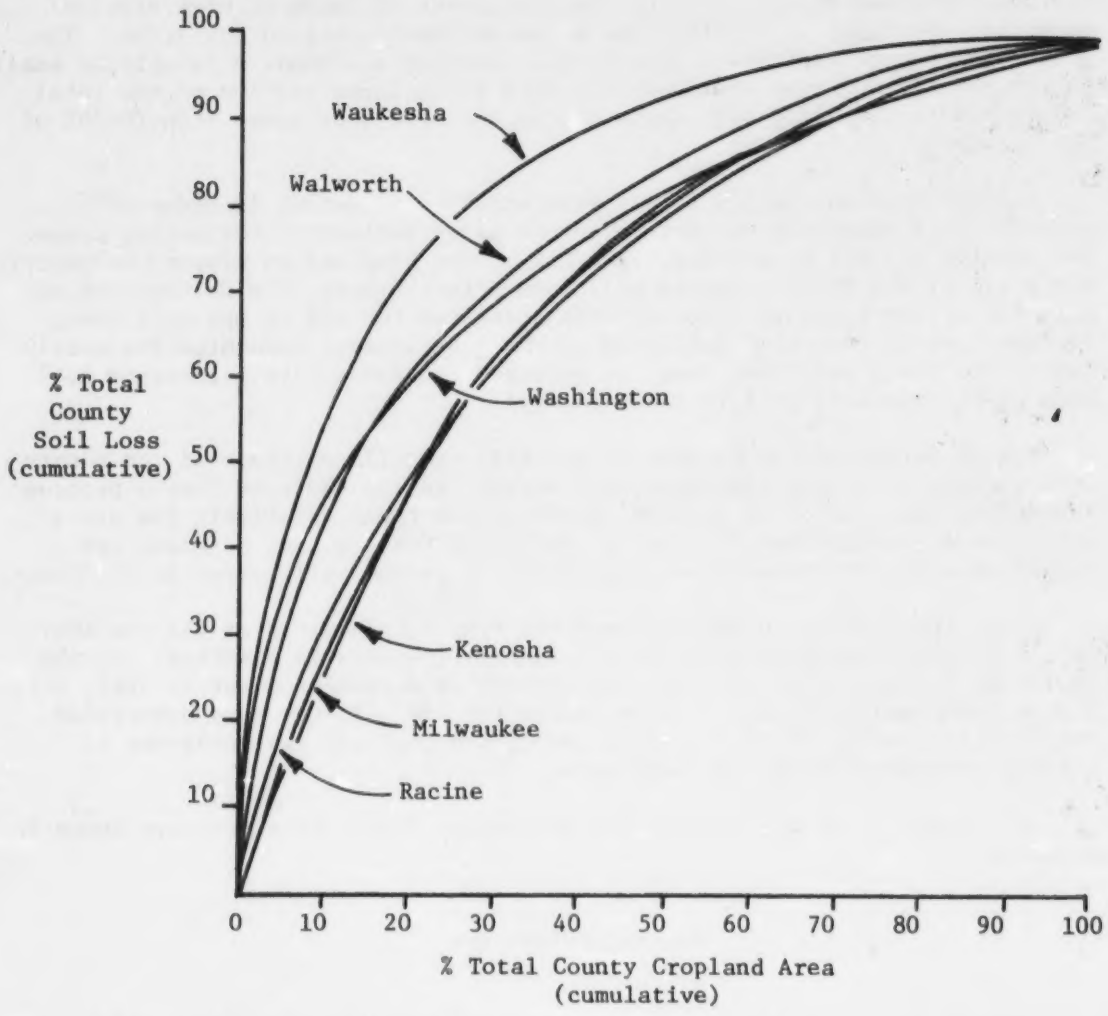


Fig. 1. Cumulative distribution of cropland soil loss in southeastern Wisconsin counties, based on a 2% sample of land in each county.

SWCD/SCS Programs

The SWCD Long-Range and Annual Planning processes were described earlier. As the only formal mechanisms for deciding program priorities, these planning procedures have, until recently, been under-utilized in Washington County. The effort to improve this situation began in 1977 with the adoption of the revised Long-Range Resource Conservation Program. Some of the major causes of non-point source pollution are recognized specifically in the new Program; e.g., the trend toward the use of larger equipment, the increase in row cropping, and the close proximity of many feedlots to surface waters. The Program questions the proper practice of tiling lowlands because of its impact on valuable wetlands; tiling is declared a production rather than a conservation-oriented practice. However, the Long-Range Program lacks detailed quantification of the county-wide needs; recommendations remain broad and are not organized in order of priority.

The annual planning process is being strengthened. Objectives in annual reports have typically been too general and are only by coincidence related to assessed treatment needs. While the District has set broad program policies at the annual meetings, it has had little influence over the allocation of manpower among specific programs and practices. One reason for this it timing. The SCS Annual Plan of Operations (APO), which sets forth specific goals for SCS and District staff, is submitted in October for the following fiscal year. Yet the District has traditionally operated on a calendar year basis, not holding its annual meeting until January. This has also precluded the possibility of using the annual plan to input into the county budget, which is also prepared each fall. The Washington County SWCD began to remedy this situation in 1978 by holding its annual meeting in August.

The process used by SCS to derive its APO is uncertain but indications are that consideration is given to practice popularity as well as practice need. In Table 2 the distribution of technical assistance goals for F.Y. 1977 and the distribution of needs reported by the 1967 CNI are compared.

The large proportion of 1977 goals in the vegetative cover category is due primarily to the conservation cropping system accomplishment objective (2000 acres = 809 ha). While the treated area objective is greatest for direct erosion control and vegetative cover practices, other practices--particularly drainage-related--require a disproportionately large amount of technical assistance time. Under the proposed APO, approximately 33% of the total assistance effort would be required to meet the drainage objective. This high priority placed on drainage practices conflicts directly with stated district objectives in the new Long-Range Resource Conservation Program and the 1977 Annual Report.

The Agricultural Conservation Program

Prioritizing land treatment needs is important at two stages during implementation of the ACP. At the State level, 1967 CNI data for each county are used in part to determine annual allocations among counties (see

Table 2. Distribution of SCS technical assistance goals for F.Y. 1977 compared to 1967 assessed conservation needs

Practice category	Treatment goals, 1977 SCS APO*			Treatment needs, 1967 CNI**		
	Acres	Ha	%	Acres	Ha	%
Direct erosion control	1,130	457	29	58,976	23,867	51
Vegetative cover	2,100	850	54	30,087	12,176	26
Woodland	64	26	2	14,522	5,877	13
Wildlife habitat	295	119	8	--	--	--
Drainage	298	121	8	12,233	4,951	10
Total	3,887	1,573	100	115,818	46,871	100

*Washington County SCS Annual Plan of Operations for F.Y. 1977.
**Wisconsin Conservation Needs Committee, 1970, Wisconsin Conservation Needs Inventory for 1967.

Appendix C). The extent to which the CNI can be used in this manner is limited by the fact that many recent ACP priority practices, e.g., grass waterways and minimum tillage were not considered in the 1967 survey. Their priority ranking among counties has been based solely on relative amount of cropland.

Within the county, practices to be approved are recommended and prioritized annually by the County Development Group. Although the ASC Committee alone has the final authority, the SWCD may play a key role in this critical phase of the county ACP Program. The relative priorities established by the 1976 and 1977 Washington County Annual Programs are compared with practice needs in the 1967 CNI (Table 3).

At least during the past 2 yrs the planned distribution of program effort has followed relative treatment needs. Note also that drainage practices are not given any priority by these recently proposed programs.

Although the SWCD and ASC Committees interchange information--as specified in their Memorandum of Understanding--no direct mechanism exists to assure that the county committee will follow district priorities. The State ASC Committe, while allocating funds to counties based on relative practice needs, also has no means currently to encourage implementation of a particular practice. This has advantages and disadvantages. The program approved in each county can be aligned closely with local preferences, thereby increasing the likelihood that farmers will choose to participate. However, this limits the possibility for utilizing the ACP to encourage specific district or statewide program objectives.

The State Committee at one time did have the authority to earmark funds for particular practices. This authority was utilized to stimulate implementation of innovative practices such as minimum tillage and animal waste control measures, and initiate programs such as the LTA Program. For example, in 1974 and 1975 the State Committee withheld about 10% of each county's allocation to LTA programs. As a result of strong lobbying efforts by the National Limestone Institute and representatives of county ASC committees, the states' authority to withhold money from counties was removed by Congress in 1976.

Program Implementation

While meaningful planning is essential, the ultimate measure of how well needs are being met is determined by what is actually accomplished--to what extent are high priority conservation practices being implemented? In particular, how effectively have the agencies been able to focus their efforts on the most critical erosion control needs.

Data on practice accomplishments over the past 10 yrs were analyzed. Information also was collected on the distribution of agency effort, i.e., staff time and funds expenditures between each program component, e.g., administration, planning, technical assistance and cost-sharing (including a breakdown by practice).

Table 3. Distribution of ACP annual program priorities for 1976 and 1977, compared to 1967 assessed conservation needs

Practice categories	1976 ACP priorities,* %	1977 ACP priorities,* %	Total treatment needs, 1967 CNI,** %
Direct erosion control	76	63	51
Grass waterways	50	40	--
Diversions	15	15	--
Stripcropping	11	8	35
Other	--	--	16
Vegetative cover	4	8	26
Woodlands	14	15	13
Drainage	--	--	10

*USDA,ASCS - Washington County Annual Programs.
**Wisconsin Conservation Needs Committee, 1970, Wisconsin Conservation Needs Inventory for 1967.

Since actual program implementation depends on acceptance by landowners, the agencies are limited in their ability to control what is ultimately accomplished. While the agencies do have some control over how their efforts are distributed, it is difficult to determine to what extent agency allocational decisions should or could influence landowner participation. A careful comparison of past accomplishments to objectives, however, provides insight into how well the two have been linked and perhaps what changes may be needed.

SWCD/SCS Program

District and SCS staff time is distributed between three major activities: administration, conservation planning and the provision of technical assistance. The DC annually compiles a report that breaks down time allocation by these broad work categories (the "E-Report"). Data from 3 yrs for Washington County are shown in Table 4. Over this period, the breakdown of staff-time between Technical Assistance:Conservation Planning:Administration has been roughly 2:2:1.

In Fig. 2 the major planning accomplishments of SWCD/SCS programs in Washington County are summarized for the 1970s. More detailed data are presented in Appendix H. As of June 30, 1976, there were 699 SWCD cooperators managing 71,290 acres (28,850 ha) of land in Washington County. Of these, 605 have farm plans covering 60,308 acres (24,406 ha) of land, i.e., 35% of total farmland, 85% of cooperator-land.

During the 1970-1976 period, an average of 42 conservation plans for about 4000 acres (1,620 ha) were completed each year. Taking into account plan cancellations (average of 13/yr), the net increase in land covered by farm plans has been 2750 acres/yr, (1110 ha/yr). For the 60,000 acres (24,280 ha) under conservation plans, the plan revision rate has averaged 1100 acres/yr (445 ha/yr) (8 plans) and some trends are evident over this period. The rates of new cooperator sign-ups and conservation plan preparation have decreased markedly, while cancellation rates have fluctuated but remained relatively high. For example, the 1975-76 level of new area planned was 41% below the 1970-71 level.

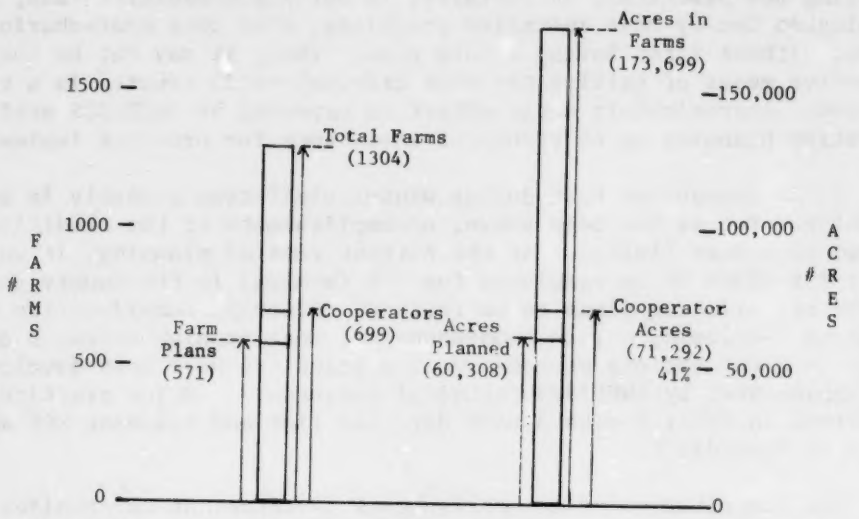
The effectiveness of the traditional conservation planning program has been questioned at the national level. In its Report to Congress on February 14, 1977, the Government Accounting Office (GAO) published findings of its plan-effectiveness research carried out in 10 counties in 8 states, including Grant County, Wisconsin. They found that most plans are not followed, that the comprehensiveness of the typical conservation plan is unnecessary and in fact detracts attention from the most critical erosion problems, and that planning effort--an average of 6 work-days/plan or $600/plan--reduces the amount of landowner contact that could otherwise be possible and the amount of effort staff could be spending to provide the assistance necessary to implement needed practices.

Table 4. Allocation of SWCD/SCS staff time in Washington County*

Item	1973-74 hr	1973-74 %	1974-75 hr	1974-75 %	1975-76 hr	1975-76 %	1973-76 hr	1973-76 %
Developing Conservation Plans	950	25	921	24	1,295	32	3,166	27
Technical assistance	1,359	36	1,414	37	1,584	39	4,357	38
Other planning and assistance	647	17	544	14	317	8	1,508	13
Program support, management, administration	794	21	926	24	857	21	2,577	22
TOTAL	3,750	100	3,805	100	4,053	100	11,608	100

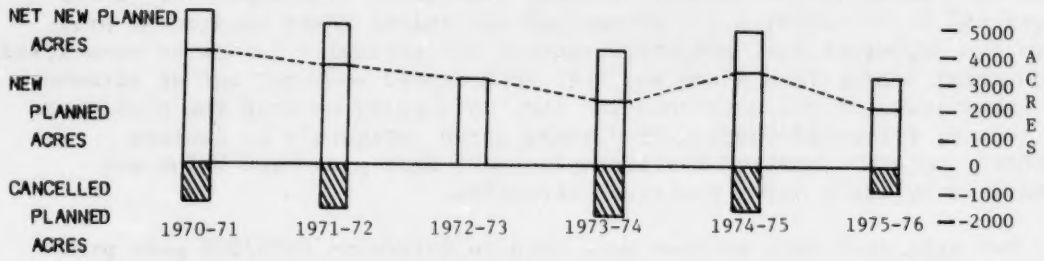
*Source: SCS "E Reports" for 1973-74, 1974-75, 1975-76 Program Years (see Appendix A).

a. Status of SWCD Cooperation and Conservation Planning



Sources: Cooperator and Conservation Plan Data for July 1, 1976, from SCS 1975-76 "F-Report." "Total Farms" and "Acres in Farms" data from 1974 Census of Agriculture.

b. Trends in Amount of Acreage Planned Annually



Note: See Appendix H for complete planning accomplishment data

Fig. 2. SWCD/SCS major planning accomplishments in Washington County as reported as SCS "F-Reports" from 1970-1976.

The findings in Washington County do not suggest otherwise. While the traditional conservation planning process undoubtedly results in landowners adopting new practices, it certainly is not a prerequisite--many farmers in Washington County have installed practices, even with cost-sharing assistance, without first having a farm plan. Thus, it may not be the most effective means of getting the most critical needs treated in a timely fashion. Approximately equal effort is expended by SWCD/SCS staff on conservation planning as on technical assistance for practice implementation.

It is recognized that during winter, staff-time probably is best spent in planning. Yet as has been shown, accomplishments of the traditional planning system have been limited. At the current rate of planning, it would take over 40 yr for plans to be completed for all farmland in the county and over 50 yr for all existing plans to be revised. Clearly, consideration should be given to developing a less comprehensive, more problem-oriented conservation plan. A great variety of conservation practices have been developed and are implemented by SWCD/SCS technical assistance. Major practices are described in Table 5 with a more detailed list and relevant SCS and ASCS codes in Appendix I.

The distribution of accomplishments is important to consider, since these practices are highly variable with respect to their effectiveness in erosion (and NPS) control, installation costs, technical assistance requirements and popularity. To simplify the analysis which follows, each major practice has been categorized, as shown in Table 5.

While all of the practices may provide for some erosion reduction, the first 5 categories of practices shown in Table 5 are ordered by what is felt to be their relative importance, i.e., direct erosion control>vegetative cover>woodland>wildlife habitat>drainage practices. The impact of "other practices" is variable; e.g., streambank and animal waste management practices are important for pollution control but generally cannot be quantified on an areal basis; farm ponds may help keep eroded sediment out of streams and lakes lower in the watershed but they do nothing to stop the problem at its source; farmstead/feedlot windbreaks serve primarily to improve aesthetic values. Most of the accomplishment data presented below are summarized by these major practice categories.

Two principal data sources were used to determine SWCD/SCS past practice accomplishments and distribution of technical staff time:

A. The SEWRPC inventory of conservation practices installed between 1965 and 1975.

B. The SCS "F-Reports" for 1972-76.

These inventories and detailed results are presented in Appendices I, J and K. To make survey results compatible, all practice accomplishment data were converted into "acreage affected" units. The methods used to estimate the technical assistance time required/unit of practice implemented also are described in Appendix I. The amount and distribution of practice accomplishments and technical assistance time determined from the 2 inven-

Table 5. Major practices implemented through SWCD, SCS, and ASGS programs

Practice type	Rationale
Direct erosion control	Reduce soil erosion by:
Contour plowing Stripcropping	Reducing runoff velocity, and filtering out sediment lost from clean-tilled strips and reducing effective slope length.
Diversions	Cutting field length and field slope, and diverting runoff in a controlled manner.
Grass waterways Runoff control structures	Reducing runoff velocity, trapping sediment, and providing a stable outlet for excess runoff.
Conservation tillage systems	Reducing the intensity of soil disturbance and maintaining surface protection.
Critical area planting and mulching	Providing permanent cover or mulch for areas with severe erosion.
Vegetative cover	
Establishing or improving permanent cover Pasture and hayland planting and management Conservation cropping systems	Reduce erosion potential and often decrease surface runoff through conversion of tilled cropland to meadow and permanent pasture, improvement of existing covered lands, and through utilization of cover crops in rotation.
Woodland	
Tree/shrub planting Timberland improvements Livestock exclusion Field windbreaks	Protect against water and wind erosion while increasing the value of woodlots.
Wildlife habitat management	
Permanent wildlife habitat Upland and wetland habitat management Hedgerow planting	Improves habitat value of unproductive or erosive lands and wetlands, and generally increases wildlife potential.
Drainage	
Surface (open) drainage Underground (tile) drainage	Increases production potential of land by disposing of excess water.
Other	
Animal waste management	Protect water quality by:
Feedlot diversions	Preventing upslope surface waters from entering feedlot and feedlot drainage from entering downslope streams.
Waste storage facilities	Retaining wastes until conditions exist for disposal with minimum potential for nutrient loss to water.
Streambank protection	Cuts stream pollution by reducing tillage and animal use of buffer strips along streams, stabilizing eroding streambanks, and preventing direct animal waste contamination.
Reservoirs and farm ponds Farmstead/feedlot windbreaks	Provide for some incidental erosion reduction but primarily serve other purposes such as recreation, fish and wildlife management, farmstead beautification, and fire protection.

tories is summarized in Fig. 3.

The differences noted between the survey results are due to trends in program emphasis and to differences in the surveys; the SCS F-Report is more comprehensive. In particular, conservation cropping systems, in the vegetative cover category, is the practice with the largest areal coverage in the SCS report, but was not included in the SEWRPC inventory.

The distribution of technical assistance time differs from the distribution of acreage affected, reflecting inclusion in the time breakdowns of practices which cannot be measured on an areal basis, e.g., runoff control structures, farm ponds, etc. The practices differ greatly in the amount of technical assistance time required for implementation, e.g., the average assistance time/acre treated is 0.3 hr for stripcropping against 1.1 hr for tile drainage (see Appendix I).

In general, about 2000 to 4000 acres/yr (810 to 1620 ha/yr) have been treated as a result of SWCD/SCS technical assistance. The largest accomplishments were for practices in the direct erosion control and vegetative cover categories. However, it appears evident that the portion of aid expended for these high priority practices has been compromised by large efforts in low priority areas; more technical assistance time has been expended on drainage practices than on any other single practice.

Drainage work has declined, however and direct erosion control plus vegetative cover accomplishments, and work on runoff control structures have increased in relative importance. Drainage programs declined substantially during 1974 and 1975, when no ACP funds for these practices were available. However, it once again increased in importance, to the extent of taking > 30% of the total technical assistance time in 1977 (12). This large increase in drainage effort contrasts with the strong anti-drainage stand taken in the new Long-Range Resource Conservation Program developed during the same time period. It seems evident that linkages between established SWCD priorities and what actually gets accomplished are not sufficiently strong.

By comparing the SEWRPC survey results with practice needs determined by the 1967 CNI (Table 6), it would appear that only 20% of the total needs identified have been met. However, while 20% of the needs for direct erosion control practices have been achieved, 47% of the land needing drainage has been treated. Especially given the relatively high costs required to install drainage systems, this strongly suggests that practice implementation has been influenced more by practice popularity than by the assessed conservation needs.

One further analysis was made of past accomplishment data in order to determine what proportion of the practices implemented were in critical problem areas. Data from the SEWRPC Inventory, and the 1976 2% Survey were utilized. As part of the SEWRPC Survey, the locations of each practice implemented during the 1965-75 period were indicated on a large scale map of the county. By overlaying this map on a slope map, the distribution of practices arranged by differing slope classes were determined. The 2% Survey was used to provide estimates of the amount of cropland soil loss within

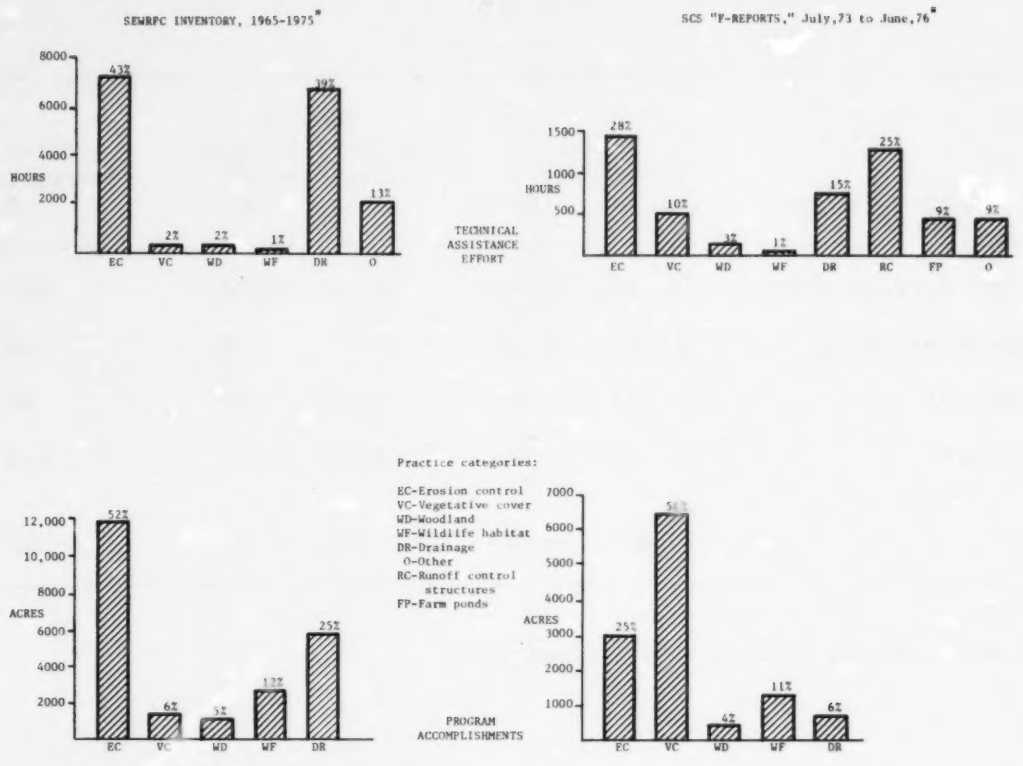


Fig. 3. Distribution of program accomplishments and technical assistance effort in Washington County.

Table 6. SWCD/SCS accomplishments in Washington County compared to assessed treatment needs.

Practice Category	Needs (1967 CNI) acres	ha	SWCD/SCS Accomplishments (1965-1975)* acres	ha	Needs Accomplished %
Direct erosion control	58,976	23,867	11,728	4,746	20%
Vegetative cover	30,087	12,176	1,276	516	4%
Woodlands	14,522	5,877	1,236	500	9%
Drainage	12,233	4,951	5,784	2,341	47%
Total	115,808	46,867	22,709	9,190	20%

*Source: SEWRPC Inventory (see Appendix J)

each slope category. Detailed results are presented in Appendix L and a summary in Fig. 4.

While most cropland is on the flatter slopes, the small portion on slopes >12% is seen to contribute the greatest portion of cropland soil loss. If conservation practices were installed preferentially on these problem areas, it is expected that the percentage of practices installed would be higher than the percentage of land area they represent. Instead, practice accomplishments follow closely the area distribution, suggesting a fairly even spread of projects over the land. While the analysis by necessity is rather crude, the results are somewhat disturbing from the standpoint of efficient resource allocation.

The Agricultural Conservation Program

The Agricultural Conservation Program does not operate independent of the SWCD/SCS programs, in that nearly all ACP accomplishments are undertaken with SCS technical assistance. However, the ACP is planned and administered separately. Thus, the ACP has a marked influence on the SWCD/SCS technical assistance programs; the reverse is not true.

Based on the detailed findings, presented in Appendices K and M, implementing ACP practices accounts for > 50% of the SWCD/SCS implementation efforts, compared to assistance time spent on non-cost-shared programs, as follows:

	SWCD/SCS Assistance time for ACP practices, %	SWCD/SCS Assistance time for non-cost-shared programs, %
Direct Erosion Control		
Stripcropping	80	20
Diversions	57	43
Grass waterways	97	3
Vegetative (not including conservation cropping systems)	32	68
Woodland	69	31
Wildlife	37	63
Drainage	79	21

Thus, conservation practice application priorities have--to a large extent--been determined more by ACP program purposes than by SWCD supervisors'

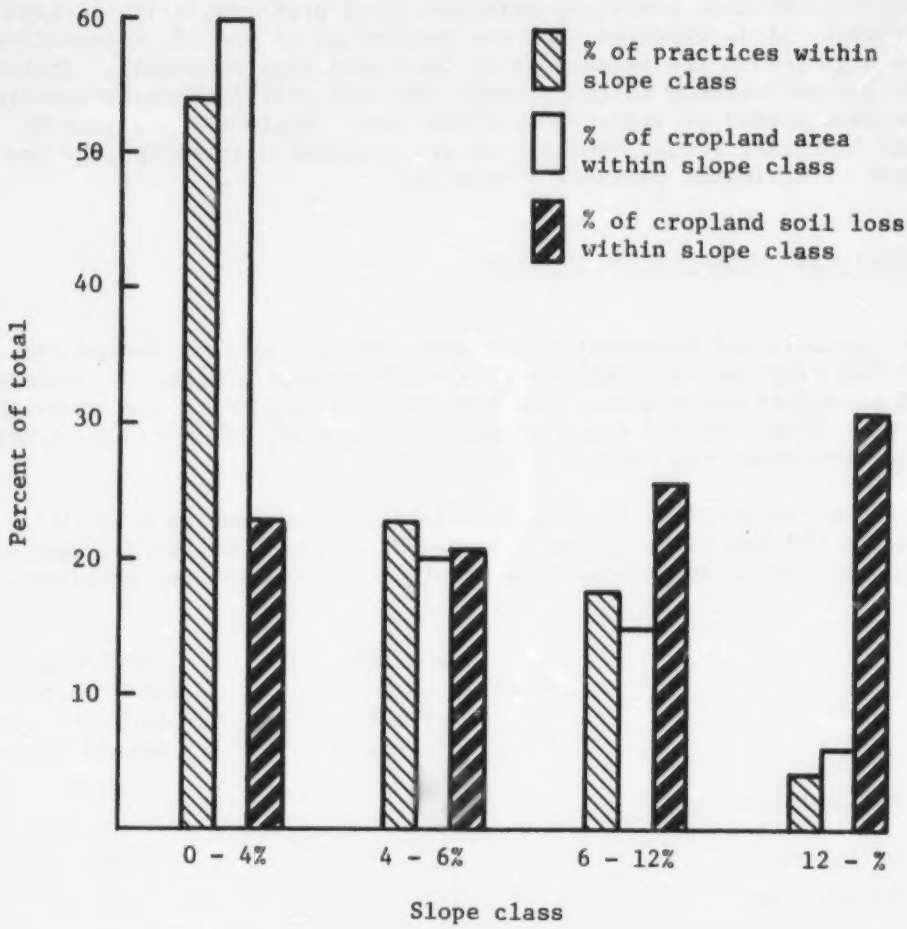


Fig. 4. Distribution of installed agricultural erosion control practices by slope class in Washington County, 1965 to 1975, based on SEWRPC data and analysis of a 2% land use survey.

directives. Unless the SWCD assists the ACS Committee in implementing the ACP, the supervisors' ability to insure that district technical support staff are carrying out SWCD objectives will be severely limited.

Data on ACP accomplishments and expenditures were collected for th 10 yr period from 1968 to 1977. This information is reported in annual reports, as described in Appendix A. The actual data is presented in Appendix M. During the 10 yr period surveyed, ACP cost-sharing expenditures averaged around $37,000/yr. Additionally, about $12,500/yr were spent to administer the program. Approximately 25% of the ASC Committee's and the ASCS office staff's time is spent on ACP work. The $12,500 figure was arrived at by taking 25% of $50,000, the average total annual administrative expenses reported from 1968 to 1976 in Washington County. These costs do not account for the SCS staff time required for ACP practice implementation. An average of about 100 requests/yr have been served, treating approximately 1000 acres (400 ha).

Yearly expenditures and accomplishments have undergone considerable flux in this period, reflecting the increasing instability of the ACP nationally. Four major program revisions have been made since 1970. After the low years of 1974 and 1975, the 1976 and 1977 programs were funded at relatively high levels. The number of applicants served and area treated have also decreased steadily: in Washington County the average area served per $1000 expended in 1968 was 39 acre (15.8 ha) compared with 16 acre (6.5 ha) in 1977; for the same two periods the number of applicants served dropped from 148 (1968) to 79 (1977), while total expenditures increased by 33% and the average area affected per applicant remained approximately 10 acres (4 ha). Clearly the ACP has lost ground to inflation. Unfortunately little evidence exists that needs are any less pressing.

In Fig. 5 the distribution of cost-sharing accomplishments is shown together with expenditures among major practice categories in the 1968 to 1977 period. Over 40% of both accomplishments and expenditures have been used for direct erosion control practices, while about 20% have been for drainage. Just as it takes varying amounts of technical assistance time for each practice, cost-sharing expenditures/unit area affected also vary substantially. For example, based on the 10 yr record from Washington County, it has cost $19/acre ($47/ha) for strippcropping and $57.40/acre ($142/ha) for tile drainage (see Appendix M).

The 1968 to 1977 data can be compared directly to assessed treatment needs from the 1967 CNI. In Table 7 relative accomplishments and expenditures are compared with relative assessed needs. Considerably less program outputs were directed towards the high priority erosion control and vegetative cover practices than was relatively needed, according to the CNI, while more was spent on lower priority practices and those not included in the CNI. Expenditures for low priority practices can reduce significantly the amount of money spent on high priority practices, from the perspective of either erosion control or NPS pollution control.

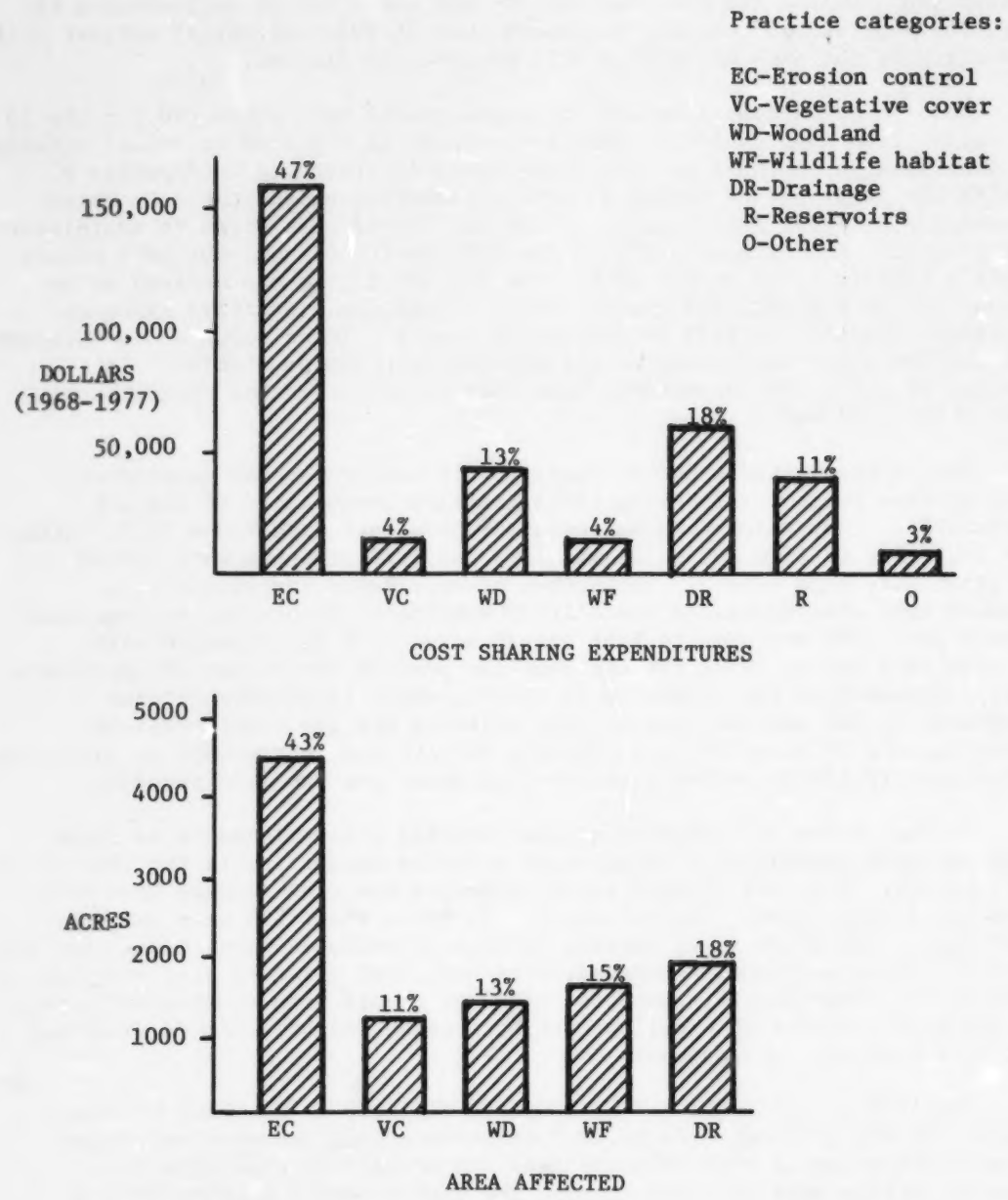


Fig. 5. Distribution of ACP cost sharing accomplishments and expenditures in Washington County, 1968-1977

Table 7. Distribution of ACP accomplishments and expenditures from 1968-1977 compared to 1967 assessed conservation needs.

Practice Category	ACP Relative Accomplishments, 1968-1977	ACP Relative Expenditures 1968-1977	% Total Treatment Needs, 1967 CNI
Direct erosion control	43%	42%	51%
Vegetative cover	11%	4%	26%
Woodland	13%	14%	13%
Wildlife habitat	14%	4%	
Drainage	19%	20%	10%
Reservoirs		13%	
Others		3%	

The distribution of Washington County ACP payments has fluctuated considerably during 1968 to 1977 (Fig. 6). The vegetative cover, woodland, and wildlife habitat practices have shown the most stability ($7800/yr total). Funding of reservoirs, e.g., farm ponds, was consistently high through 1973, after which implementation of the practice was reduced substantially and eventually eliminated. Expenditures on the drainage practices have varied greatly, providing perhaps the best example of the conflicting pressures that underlie the ACP program. Whenever there has been some state or national level practice approval authority, e.g., during 1974 and 1975, cost-sharing for these practices in Washington County was cut severely or eliminated. However, when controls were returned solely to the county committee, the drainage practice again became a priority effort, being the second highest funded practice in 1976.

Animal waste practices, the main component of the "other" category in Fig. 6, were funded only during the period from 1970 to 1973, a result of State incentives to implement these practices during this period.

The variation in erosion control practice expenditures has--until recently--appeared to be the result of simply making up the difference between these other payments and total county annual allocations. The relative importance of these practices has been increasing.

Comparison of the 1975 and 1976 programs provides further insight into some important characteristics of the ACP. Although total 1975 expenditures were comparatively low, relative and absolute expenditures and accomplishments in the direct erosion control category were high and included 62% and 77% of that year's total accomplishments and expenditures, respectively. This was the last year that drainage practices were prohibited nationally. In 1976, total program expenditures grew substantially due to increased federal allocations, yet erosion control accomplishments and expenditures actually dropped. Drainage practices, which once again became permissible, took up nearly all of the increased program allocation.

In order to evaluate how strong the demand for certain practices is, a comparison of cost-share applications with the amount approved was made. Complete results appear in Appendix M. The findings for 1976 were typical. While twice as many applications were made for direct erosion control practices as were approved, nearly 6 times the number of applications for drainage practices were made. One must appreciate the amount of pressure this intensity of demand places on the ASC Committee. Although drainage was the single most funded practice in 1976, the relative demand for it was even greater.

Data from 1977 show that the Washington County ACP has recently become more effectively directed towards priority problems (Fig. 6), even in light of continued high demands for production-oriented practices. In this year, drainage accounted for only 2% of program effort, while 48% of the area affected and 80% of program expenditures were for erosion control.

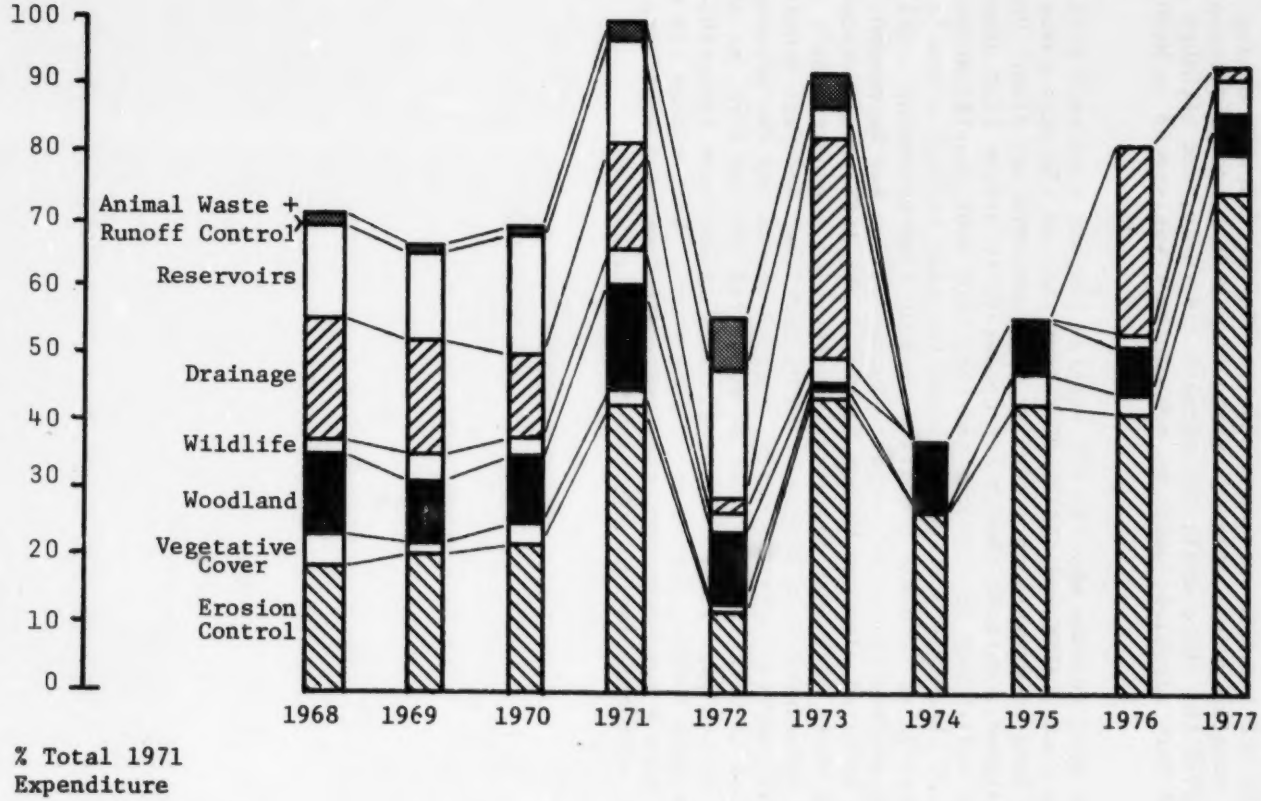


Fig. 6. Trends in distribution of ACP cost sharing funds in Washington County, 1968 to 1977

The Long-Term Agreement Program

The Long-Term Agreement Program (LTA) has received high priority in the Washington County SWCD Long-Range and Annual Programs and has been promoted continually by the ACP Annual Programs. Yet in the 4 yr that the program has been operable, only 9 farmers have signed LTA contracts in the County, i.e., < 2% of the SWCD cooperators. Significant fund commitments of as much as 20% of total ACP expenditures were made to LTA participants during the 1974 and 1975 program years, when the State earmarked funds to stimulate the program. In 1976 the State could not earmark any funds, and although it encouraged LTA participation, only one new contract was signed in Washington County.

There are many reasons why the LTA program has not been well received. The Washington County ASCS and SCS staff report that an LTA plan takes over twice as long to prepare as a regular farm conservation plan. Once an agreement is signed, constant checks are necessary to assure that planned treatments are undertaken on schedule and that they meet specifications. Farmers may feel that they must deviate from the plan to meet a year's particular climatic or economic conditions. Thus time-consuming compliance monitoring and deliberation over variance-authorization may be needed. The paperwork involved also can be substantial. The ASCS is accustomed to completing its books each year and starting anew with the next year's program. The adjustment to a program running more than one year requires many additional complications. Finally, a major reason why the program is not supported is because funds must be committed for the duration of the agreement in the year it is initiated, since it has been impossible to guarantee continual funding levels for future years. Rather than tie up funds for one farm's long-term use, the county ASC Committee would prefer to share costs with more individuals each program year.

REFERENCES

1. U.S. Congress. 1972. Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500.

2. U.S. Congress. 1977. The Clean Water Act of 1977, Public Law 95-217, Section 35, amending Section 208, P.L. 92-500.

3. U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service. 1975. Agricultural Conservation Program. Background Information Publication 12. ASCS, Washington, D.C.

4. Federal Register. 1975. Agriculture Conservation Program--Rules and Regulations. Federal Register, Nov. 10, 1975. Vol. 40, No. 17, Section 701-3. pp. 52341, 52342.

5. U.S. Congress. 1977. The Food and Agricultural Act of 1977, Public Law 95-113, Section 1501 (a)(1).

6. Washington County Soil and Water Conservation District. 1977. Washington County Long Range Resource Conservation Program. 9 pp.

7. Washington County Soil and Water Conservation District and the U.S. Department of Agriculture. 1944. Memorandum of Understanding, January 15, 1944.

8. Washington County Soil and Water Conservation District and the Washington County Agricultural Stabilization and Conservation Committee. 1978. Supplement Memorandum of Understanding. February 17, 1978.

9. U.S. Department of Agriculture, Soil Conservation Service. 1977. Soil Survey, Washington County, Wisconsin, U.S. Government Printing Office, Washington, D.C.

10. Wischmeier, W.H., and D.D. Smith. 1965. Predicting Rainfall-Erosion Losses from Cropland East of the Rocky Mountains, USDA-ARS-Ag. Handbook No. 282.

11. Moore, I.C., F.W. Madison, and R.R. Schneider. 1979. Estimating Phosphorus Loading from Livestock Wastes: Some Wisconsin Results. In: Proc. 1978 Cornell Agricultural Waste Management Conference. Ann Arbor Science, Ann Arbor, Michigan.

12. U.S. Department of Agriculture, Soil Conservation Service. Washington County Office. 1978. Annual Report to Washington County SWCD Supervisors. February 1, 1978.

APPENDICES A - M

APPENDIX A. MAJOR DATA SOURCES

I. Land Inventory and Treatment Needs Information

A. Washington County Detailed Soil Survey. The modern soil survey contains a considerable amount of material relevant to assessing erosion potential. Washington County is fortunate to have a modern soil survey. The survey includes detailed soil series maps, slope information and interpretive materials. The categorization given of soils into soil capability units is applicable directly to the identification of potential problem areas.

B. U.S. Census of Agriculture. Completed every 5 years by the U.S. Department of Commerce, the Census is an accurate source of some relevant land use information for the county. Included are estimates of area in total cropland, harvested cropland, corn land, hay land, pastureland, and woodland. Animal inventory data also is included. Census data prior to 1974 also included a limited amount of information on the extent of some conservation practices on the land--contouring, strip-cropping and terraces. Unfortunately this information was not collected for the 1974 Census. It takes 2 to 3 years for the Census data to be made available.

C. Wisconsin Assessor Farm Statistics. Summaries of the annual assessors' farm statistics reports provide useful information and are obtainable from the USDA Statistical Reporting Service office in Madison, Wisconsin, as well as from local assessors offices. Detailed information is included on crop types and animal populations. Besides the county summaries, information also can be obtained by town and incorporated cities and villages.

D. Conservation Needs Inventory. The CNI procedure was developed by the USDA in the mid 1950's for nationwide application. The CNI involves a stratified random survey of approximately 2% of land in each county and is undertaken usually by personnel responsible to the SCS District Conservationist. In Washington County there are 36 quarter-section CNI plots. For each section surveyed, data are collected on soils, slopes, land use and management practices. Recommendations are made on needed management changes. The last published inventory for Wisconsin was made in 1967.

E. 208 2% Survey. During 1976 and 1977 the BSWCD, county SWCD, SCS, and DNR cooperated to make a revised land use and treatment needs inventory as part of the statewide 208 NPS water pollution control planning process. The same survey plots as those used in the CNI were analyzed.

The 208 inventory was geared more directly towards assessing nonpoint water pollution problems. Specific management practice data were collected. For croplands, this included information on rotations, plowing methods and conservation practices. Animal waste problems and urban lands also were surveyed in the 1976 inventory.

II. Effort Information

A. SCS "E-Report". The "E-Report", compiled annually by the SCS District Conservationist, gives a breakdown of time expended by SWCD/SCS staff in broad work categories during the previous year. Included is time spent in conservation planning, technical assistance, special planning and assistance programs, and program support, management and administration. Staff salary information is included.

B. SCS Annual Plan of Operations (APO). The APO, completed annually by the DC, includes estimates of: 1. Proposed SWCD/SCS accomplishments for the following year, quantified by specific goals in each planning and practice category; 2. technical assistance time required to implement each unit of proposed work; and 3. total work time to be allocated to each planning and practice accomplishment effort.

III. Program Accomplishment Information

A. SCS "F-Report". The DC completes the "F-Report" annually. Included is: 1. A list of planning accomplishments--new and cancelled cooperators, farm plans, inventories and evaluations; 2. the number and extent of each practice implemented during that year under SWCD/SCS staff technical supervision and 3. an estimate of the amount of land "adequately treated" due to SWCD/SCS efforts during that year.

B. SCS "99-Report". The "99-Report" follows the same format as the "F-Report" and is completed annually by the DC. This provides the only detailed estimate available of the cumulative number and extent of all practices on the land, plus an estimate of the total amount of "adequately treated" land in the county. To complete this report the DC must estimate--for every practice--the total amount added or removed during the year and accordingly add or subtract this amount from the previous year's level. This should include all SWCD/SCS-supervised work (which covers nearly all ASCS cost-sharing work) plus private activities that comply with SCS practice standards. This cumulative procedure has been underway since the 1940's.

C. Wisconsin ASCS Annual Reports. These reports, published by the State ASCS office in Madison--list for each county--the number of ACP program participants, the amount of each practice implemented, the area affected, and the amount of cost-sharing funds expended. These detailed reports have been published since 1968.

The lack of compatability between SCS and ASCS practice definitions leads to some confusion, particularly when attempting to determine the proportion of SCS projects that involve ACP funds. For example, under the ASCS permanent wildlife habitat practice (RE-10) there are at least four different acceptable SCS practices which could be applied (pond construction, hedgerow planting, wetland wildlife and upland wildlife habitat management). On the other hand, accomplishments under the SCS subsurface drainage category could include tiling applied to implement three different ASCS practices--SC-10, subsurface drainage; RE-12, tile associated with grass waterways; and RE-8, tile associated with diversion terraces.

D. Survey of Conservation Practices. The Southeastern Wisconsin Regional Planning Commission made a detailed survey of ASCS cost-shared and SWCD/SCS-supervised practices implemented during the 1965-75 period. Data were gathered directly from ASCS files and SWCD/SCS farm plans, counting all practices to be implemented. Maps were constructed showing the location of practices implemented. Summaries of the data have been compiled by county, township and subwatershed units. Data totals unfortunately don't separate ASCS-cost-shared practices from non-cost-shared SCS activities, although these have been differentiated on the maps. While this source provides information spanning the largest time period, some questions exist as to its accuracy since it is possible that some of the practices indicated on the farm plans were never implemented.

APPENDIX B. SWCD AND SCS ANNUAL PROGRAMS

I. Excerpts from Washington County SWCD Work Plan Activities for 1978.

A. Provide planning and technical assistance to landowners and users.

B. Promote total resource development and pollution control in all land use planning.

1. Assist Land Use office to administer provisions of land division ordinance relating to erosion control.

2. Continue assistance to units of government (town, village and city) in developing and implementing erosion control programs.

3. Provide promotion and training in special land management practices through field days, field trips, tours, and other educational programs (minimum tillage, crop residue, cover cropping, animal waste management, sewage sludge, and other innovative best management practices).

4. Continue cooperation with SCS, SEWRPC, UWEX, ASCS, and WCP in developing county priorities for improving sediment control and pollution abatement program.

5. Limit assistance and provide contractor training on tile to outlets, staking main lines and critical laterals.

6. Provide educational information on the proposed Washington County Agricultural Erosion Control Ordinance.

7. Cooperate with ASCS in identifying and developing pilot projects relating to animal waste management.

C. Promote use of soil survey by all in planning and land division projects.

1. Provide technical consultive assistance on soil limitations for sewage disposal systems and sludge management to landowners, engineers, planners, developers and realtors.

D. Promote conservation through education awards, contests, tours and special observances with Jr. Board assistance and involvement.

E. Update and publish the "Moving to the County" pamphlet.

F. Review long range resource conservation programs by district supervisors.

1. Amend annual plan as needed.

2. Review SCS annual plan and review SWCD budget needs by August.

II. Excerpts from SCS Annual Time Budget Plan of Operations for F.Y. 1978, Washington County.

Planned job or activity	SCS code no.	Units	Planned amount	Rate, units/hr	Total planned time, hr
Planning activities					
District cooperator	100	Number	25	3	75
Conservation plans	108	"	24	35	840
Plans revised	110	"	7	30	210
Inventory + evaluation	111	"	25	5	125
Practice implementation					
Animal waste management	312,13	Number	4	30	120
Critical area planning	342	Acre	4	6	24
Diversions	362	Feet	2,500	65	40
Ponds	378	Number	10	10	100
Grass waterways	412	Acre	20	13 hr/ac	
Hedgerows	422	Feet	10,000	450	24
Minimum tillage	478	Acre	1,000	100/day	80
Pasture and hayland management	512	"	40	40/day	8
Streambank protection	580	Feet	750	50	15
Stripcropping	585	Acre	300	25/day	96
Subsurface drainage	606	Feet	75,000	500/day	150
Surface drainage	607	"	2,500	60	42
Tree planting	612	Acre	20	5	4
Wildlife management	644,45	"	260	30	9
Woodland harvesting + improvement	654,66	"	30	3	10

APPENDIX C. METHOD USED BY THE STATE ASC COMMITTEE TO ALLOCATE ACP FUNDS TO COUNTIES DERIVED FROM DISCUSSIONS WITH I. BOLSTAD, ASCS STATE OFFICE, MADISON, WISCONSIN

I. Practices are prioritized by the establishment of a percentage of total funds for each. In 1976 and 1977 funds were prioritized in Wisconsin as follows:

Practice	Funding priority factor	
	1976	1977
Grass waterways	0.29	0.30
Erosion control	0.14	0.14
Tree shrub planting	0.14	0.11
Contour stripcropping, terracing, diversions	0.11	0.09
Streambank protection	0.07	0.04
Improved vegetative cover	0.07	0.10
Permanent vegetative cover	0.05	0.04
Timberstand improvement	0.04	0.04
Wildlife habitat improvement	0.04	0.05
Water impoundments	0.04	0.05
Minimum tillage	--	0.04

II. The relative needs factor (county's need divided by total need in the State) of each county for each practice is determined from a variety of sources:

- The CNI for the prioritized practices it includes (i.e., forestry-related and vegetative cover practices).
- Streambank protection relative needs are determined from DNR data based on the length of streams in a county multiplied by a relative erodibility factor.
- The relative percentage of cropland in the county is used as the needs factor for all other practices.
- Factors derived from Washington County are shown under No. 5, below.

III. Total county allocation is derived by applying the relative needs factor (II above) to the amount of money available statewide for each practice (I above) and summing:

$$\text{County Allocation} = \sum_{i}^{n} A_i T N_i$$

i - index of individual practices

n - total number of practices included in fund allocation determination

A_i - funding priority factor given practice i (I)

T - total ACP funds available

N_i - relative need factor, practice i, in County (II)

IV. The county allocation is finally adjusted so that each county receives an amount proportionally similar to what is received the previous year. The percentage change permitted in a year has varied from 5 to 25% of the county's previous year's allocation.

V. Relative needs factor applied to allocate ACP funds to Washington County in 1975

Practice categories	Ratio of needs*
Permanent vegetative cover	1.17
Improved vegetative cover	0.42
Tree/shrub planting	0.18
Timberstand improvement	0.14
Stripcropping/terraces/diversions	1.40
Streambank protection	0.32
Total cropland	1.35

*This is the ratio of practice needs in Washington County versus the needs of an average county in Wisconsin, determined as described above, e.g., Washington County needs 1.17 times as much permanent vegetative cover as the average Wisconsin county.

APPENDIX D. WASHINGTON COUNTY PLAN - 1977 AGRICULTURAL CONSERVATION PROGRAM

I. Program Objectives

A. To achieve maximum conservation benefits for soil and water conserving practices of an enduring nature which would not be performed without cost-sharing assistance.

B. To emphasize the continuing need for forestry practices, upland erosion control practices and total farm conservation planning.

C. To offer long-term agreements when desirable and applicable.

II. Major Conservation and Pollution Problems

A. Soil erosion from water runoff is a major problem. Parts of the Town of Trenton have excessive sand which need long range cover protection. Steep hills in the Kettle Moraine Region through the center of the county are in need of additional trees and permanent cover.

III. Priorities

A. Priority will be given to farms which are recommended by SCS as needing erosion control practices and cost-sharing would be an incentive to accomplish the work planned. Practices to provide more cover and minimum tillage promotion will be used to discourage excessive open fields of recent years.

B. The county development group decided that all the practices in the county program except the SC-9 and SC-10 will be considered high priority. Less emphasis for lowland assistance is anticipated along with lesser technical assistance from SCS. Cost-sharing may be considered for some land owners later on an individual basis.

IV. Program Funding

A. Total state allocation $5,182,000
Original allocation for the county is 43,165
No special reserves for LTA's will be established.
Additional funds for pooling agreements will be requested from the state reserve if available.

B. It has been tentatively agreed to allocate and use the funds on the following basis:

RE-1 & 2	8%	RE-9	4%
RE-3 & 4	15%	RE-10	5%
RE-6 & 7	8%	RE-12	40%
RE-8	15%	Others	5%

V. Program Implementation

A. The County Committee will encourage all the high priority practices periodically in news releases, newsletters and in public appearances as opportunities permit. Individual mailings to all operators and owners announcing the program will be used to provide an equal opportunity to all eligible persons interested.

B. Pooling agreements and group cooperation will be emphasized. Approvals will be granted according to the individual needs and recommendations from SCS.

C. Counties are encouraged to seek the participation of FFA, 4-H and minority groups in program promotion. Special projects involving youth groups should be encouraged.

D. The progress being made in implementing the phases of the ACP should be reviewed periodically. Periodic interviews with SCS personnel held to appraise progress and select farms for tentative approvals.

APPENDIX E. WASHINGTON COUNTY CROPS, 1965-1976*

Date	Number of farms	Area of farms, acres	Harvested area, acres	Corn	Oats	Hay	Wheat	Soybeans	Peas	Sweet corn
				Acres						
1965	1642	205819	124523	36294	32258	53418	2347	206	2687	1290
1967	1509	194954	118655	37410	27891	48752	4352	250	2000	1580
1969	1450	187864	114055	36923	28413	46521	1799	399	1015	1615
1970	1391	183289	112800	37165	27311	46635	1533	356	2222	1571
1971	1318	180340	118132	45185	23258	47631	1878	180	2154	1418
1972	1249	180992	115797	44523	24781	44751	1366	376	2705	2158
1973	1165	180352	114414	43698	23140	45762	1218	598	2748	2076
1974	1087	167902	114317	44314	20737	45616	3244	406	2987	1944
1975	1057	165976	115415	45782	20727	44779	3878	249	2583	1506
1976	985	161177		45418	20502					

*Wisconsin Statistical Reporting Service, Assessors Farm Statistics Reports.

APPENDIX F. DATA FROM THE 1975-76 WASHINGTON COUNTY "99 REPORT"

Practices	SCS code	Total amount on the land as of July 1, 1976
Erosion and agricultural pollution control		
Conservation cropping system	328	41,527 acre
Contour farming	330	14,459 "
Critical area planning	342	48 "
Crop residue management	344	280 "
Diversion	362	152,701 feet
Grass waterway/outlet	412	338 acre
Holding pond	425	3 acre
Minimum tillage	478	1,862 acre
Mulching	480	6 "
Streambank protection	580	1,500 feet
Stripcropping	585	13,785 acre
Structure for water control	587	70 "
Vegetative Cover		
Pasture & hayland management	510	1,071 acre
Pasture & hayland planting	512	4,308 "
Woodland		
Tree planting	612	3,389 acre
Woodland improvement harvesting	654	302 "
Woodland improvement	666	1,417 "
Livestock exclusion	472	2,091 "
Field windbreaks	392	2,700 feet
Wildlife		
Hedgerow planting	422	507,270 feet
Wildlife wetland management	644	8,765 acre
Wildlife upland management	645	7,272 "
Drainage		
Drainage field ditch (open)	590	309,410 feet
Subsurface drain (tile)	606	1,230,891 "
Other		
Ponds	378	371 acre
Farmstead/feedlot windbreak	380	674 "
Land adequately treated	691	121,274 acre

APPENDIX G. RESULTS OF 208 2% SURVEY FOR WASHINGTON COUNTY CROPLAND

I. Survey information

Quarter-sections surveys	36
Rotation cropland "fields" surveyed	146
Cropland surveyed	2,915 acres
Total cropland soil loss	6,908 tons/yr
Average cropland soil loss rate	2.37 tons/acre/yr

II. Soil loss distribution among quarter-sections

Item	% of item averaging soil loss rate of (tons/acre/yr)			
	0-3	3-6	6-9	> 9
Quarter-sections	80	14	3	3
Area	79	16	2	3
Soil loss	44	28	7	21
Soil loss for worst quarter section				21

III. Soil loss distribution among surveyed fields* and cropland acres

Item	% of item averaging soil loss rate of (tons/acre/yr)			
	0-3	3-6	6-9	> 9
Fields	78	15	3	3
Area	83	12	2	3
Soil loss	43	24	5	28
Soil loss for worst field				18

*A "field" as used here refers to the smallest inventoried land unit.

IV. Distribution of 2% survey cropland and soil loss by land classes and land management categories.

Land class*	(C)(P) Range**	Total cropland area, %	Total cropland soil loss	
			%	tons/acre
1	0.0-0.1	0.86	0.16	0.45
	0.1-0.2	4.7	1.59	0.80
	0.2-0.3	2.09	0.98	1.11
	0.3-0.4	0.99	0.53	1.26
	Sub-total	8.64	3.26	0.89
2e	0.0-0.1	19.04	10.64	1.32
	0.1-0.2	21.68	18.1	1.98
	0.2-0.3	0.14	0.10	1.72
	0.4-1.0	1.72	7.7	10.63
	Sub-total	42.57	36.54	2.03
3e, 4e, 6e, 7e	0.0-0.1	11.2	15.46	3.27
	0.1-0.2	5.63	14.14	5.95
	0.2-0.3	0.45	3.57	18.95
	0.3-0.4	0.69	0.96	3.3
	0.4-1.0	0.69	17.9	61.86
	Sub-total	18.63	52.03	6.62
W	0.0-0.1	1.65	0.26	0.37
	0.1-0.2	10.3	2.4	0.55
	0.2-0.3	6.28	1.7	0.65
	0.3-0.4	4.56	1.6	0.84
	0.4-1.0	0.24	0.09	0.90
	Sub-total	23.02	6.09	0.62
S	0.0-0.1	1.03	0.23	0.52
	0.1-0.2	2.78	0.49	0.41
	0.2-0.3	0.45	0.12	0.65
	0.3-0.4	2.88	1.24	1.02
	Sub-total	7.14	2.08	0.69

*"Land Class" refers to soil capability classes used in modern soil surveys.

**(C)(P) refers to the "Crop Management Factor", (C), times the "management practice factor", (P), from the Universal Soil Loss Equation (Wischmeier and Smith, 1965- ARS Agricultural Handbook #282).

APPENDIX H. MAJOR PLANNING ACCOMPLISHMENT DATA, WASHINGTON COUNTY SWCD/SCS*

Item	70-71		71-72		72-73		73-74		74-75		75-76		Mean annual	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acre	No.	Acre
New SWCD cooperators	53	5,467	51	5,090	-	-	37	4,107	40	4,926	43	3,137	45	4,546
Cancelled SWCD cooperators	12	1,428	16	1,548	-	-	14	1,817	21	1,595	9	1,038	15	1,485
Net increase SWCD cooperators	41	4,039	35	3,542	34	3,172	23	2,290	19	3,331	34	2,099	30	3,061
New conservation plan	56	5,363	44	4,651	-	-	35	3,470	37	3,288	38	3,043	42	3,963
Cancelled conservation plans	11	1,083	18	1,603	-	-	7	1,042	22	1,824	4	353	13	1,217
Net increase conservation plans	45	4,280	26	3,048	27	2,429	28	2,428	15	1,464	34	2,508	29	2,746
Total SWCD cooperators	513	52,819	554	56,858	589	60,400	623	63,572	646	65,862	665	69,193	699	71,292
Total conservation plans	430	44,151	475	48,431	501	51,479	528	53,908	556	56,336	571	57,800	605	60,308
Conservation plans revised	9	1,252	8	1,503	-	-	6	537	6	847	11	1,351	8	1,098

*SCS "F-Reports" for 1970-71 to 1975-76 program years.
-Data not available.

APPENDIX I. MAJOR SWCD, SCS AND ASCS PRACTICES, AFFECTED ACREAGE PER PRACTICE, AND APPROXIMATE TECHNICAL ASSISTANCE TIME REQUIREMENTS FOR DESIGN AND IMPLEMENTATION IN WASHINGTON COUNTY

Practice	SCS code	ACP code	Unit	Units/acre affected	Units implemented/staff hr*	Acre affected/staff hr
				Erosion Control		
Stripcropping	585	RE-6	Acre	1	3.1	3.1
Diversions	362	RE-8	Feet	50**	65	1.3
Terraces	600	RE-7	"	375**	50	0.13
Grass waterways	412	RE-12	Acre	0.066***	0.077	1.15
Minimum tillage	478	S-1	"	1	7.5	7.5
Critical area planting	342	RE-12	"	1	0.17	0.17
Mulching	484	RE-12	"	1	0.17+	0.17
Contouring	330		"	1	2.5	2.5
				Vegetative Cover		
Conservation cropping system	328		Acre	1	16.2++	16.2
Pasture/hayland management	510	RE-1,2	"	1	5	5
Pasture/hayland planting	512	RE-1,2	"	1	5	5
				Woodland		
Tree planting	612	RE-3	Acre	1	4	4
Woodland improvement	666	RE-4	"	1	4	4
Livestock exclusion	472	RE-3,4	"	1	4.4++	4.4
				Wildlife		
Wildlife wetland management	644	RE-10	Acre	1	27.5	27.5
Wildlife upland management	645	RE-10	"	1	27.5	27.5
Hedgerow planting	422	RE-10	Feet	--	450	--
				Drainage		
Drainage field ditch (open)	390	SC-9	Feet	70+++	60	0.86
Subsurface drain (tile)	606	SC-10	"	550**	500	0.91
Drainage, main/lateral	480	SC-9	"	620†	60††	0.10
				Other		
Streambank protection	580	RE-9	Feet	--	50+++	--
Animal waste management	312,13	SI	Number	--	0.033	--
Ponds	378	RE-5	"	--	0.10	--
Runoff control structures	410,587	RE-11	"	--	0.012	--
Farmstead and feedlot windbreaks	380	RE-13	Acre	1	4	4

*Derived from SCS 1977 Annual Plan of Operations, except where noted.
**General SCS design Standards.
***Rough estimate, based on analysis of ASCS data.
+Mulching time assumed same as critical area planting time.
++Estimates provided by Herb Tauchen, DC, Shawano County.
+++Average of 4 yr of ASCS data.
†Rough estimate: Assume 35 ft of adjacent land on each side of lateral directly impacted. Acreage drained by feeder systems not included.
††Drainage main/lateral time assumed same as Drainage field ditch time.
+++From 1978 SCS APO.

APPENDIX J. INVENTORY OF CONSERVATION PRACTICES INSTALLED IN WASHINGTON COUNTY PREPARED BY SEWRPC, 1965-1975

Practices	Inventory unit	Amount found	Estimate of area affected, acres*	Estimate of technical assistance time, hr*
Erosion Control			11,728	7,229
Stripcropping	Acre	7,116	7,116	2,227
Diversions	Feet	84,729	1,685	1,304
Terraces	"	13,635	36	271
Grass waterways	"	262,258	2,709	2,347
Mulching	Acre	172	172	1,030
Vegetative Cover			1,276	255
Permanent and improved vegetative cover	Acre	1,276	1,276	255
Woodland			1,236	309
Treestand planting and improvements	Number	299	1,236**	309
Wildlife			2,685	98
Wildlife habitats	Number	370	2,685**	98
Drainage			5,784	6,642
Open drainage	Feet	292,476	4,178	4,875
Tile drainage	"	883,566	1,606	1,767
Total area affected	Acre		22,709	
Other				2,266
Farm ponds	Number	186		1,860
Runoff control structures	"	2		160
Animal waste facilities	"	2		60
Wind erosion control and hedgerows	Feet	83,828		186
Total technical assistance time				16,799

*See Appendix J for conversions used to derive Acreage affected values and technical assistance time estimates.
**Assuming 4.13 acres served/project (taken from average acre served/project value in ACP).
***Assuming 7.25 acres served/project (taken from average acre served/project value in ACP).

APPENDIX K. CONSERVATION PRACTICE ACCOMPLISHMENTS IN WASHINGTON COUNTY, 1971-76

Practice	Units affected for period*											
	1971-72	1972-73	1973-74		1974-75		1975-76		1971-76	1973-76		
	A	A	A	B	A	B	A	B	A	A	B	Time,**
Major Erosion Control												
Stripcropping	481	284	180	180	419	386	252	227	1,616	851	793	254
Diversions	68	56	55	55	42	42	50	50	271	147	147	113
Grass waterways	165	105	120	107	195	159	540	444	1,125	855	710	625
Minimum tillage	173	407	280	196	308	148	694	519	1,862	1,232	863	115
Critical area planting	0	6	19	16.5	8	4	15	7	48	42	27.5	165
Mulching	0	0	1	0.5	1	0	4	0	6	6	0.5	3
Crop residue use	0	20	20	0	100	0	100	0	240	220	0	
Contour farming	515	433	314	289	175	125	100	0	1,537	589	414	166
TOTAL	1,402	1,311	989	844	1,248	864	1,755	1,247	6,705	3,942	2,955	1,441
Vegetative Cover												
Pasture/hayland management/planting	213	315	430	350	307	137	292	144	1,557	1,029	631	126
Conservation cropping system	1,000	1,732	1,867	1,718	2,273	2,123	2,280	2,005	9,152	6,420	5,846	360
TOTAL	1,213	2,047	2,297	2,068	2,580	2,260	2,572	2,149	10,709	7,449	6,447	486
Woodland												
Tree planting and woodland improvement	291	202	353	293	267	197	95	47	1,208	715	537	134
Wildlife												
Wildlife upland and wetland management	821	770	787	714	391	357	435	296	3,204	1,613	1,367	50
Drainage												
Open	294	114	176	54	41	20	38	9	663	255	83	97
Underground	78	133	119	108	156	150	416	368	902	691	625	689
Main/lateral	0	0	0	0	0	0	20	0	20	20	0	
TOTAL	372	247	295	162	197	170	474	377	1,585	966	703	786
Other												
Farm ponds, number	1	33	30	27	24	11	20	10	108	74	48	480
Streambank protection, feet	0	1,000	0	0	0	0	500	0	1,500	500	0	0
Livestock exclusion, acres	335	190	200	175	300	270	341	277	1,366	841	722	165
Animal waste holding facilities, number			2	2	0	0	1	1	3	3	3	90
Hedgerow planting, 1000 feet	23	6	73	62	17	12	75	22	194	165	95	212
Runoff control structures, number	8	4	6	6	7	5	5	5	30	18	16	1,280

A Accomplishments listed by SCS "99 Reports" for each program year (see Appendix A).
B SWCD/SCS Accomplishments listed by "SCS reports" for each program year (see Appendix A).
* See App. I for conversions used to derive technical assistance time estimates.
**Units are acres unless indicated otherwise.

APPENDIX L. DATA COMPARING PRACTICE DISTRIBUTION WITH CROPLAND AND SOIL LOSS DISTRIBUTION

1. Number of Installed Agricultural Practices Per Slope Class--Washington County: 1965-1975*

Practice name	Number of practices				
	0-3.9% slope	4-5.9% slope	6-11.9% slope	12-19.9% slope	20-More % slope
Stripcropping**	97	39	31	4	1
Tree planting	87	69	43	12	2
Wind erosion control**	22	5	13	--	--
Wildlife habitat	152	80	48	9	7
Permanent vegetative cover**	49	18	12	2	--
Terracing**	--	1	--	--	--
Farm ponds	66	35	21	3	1
Diversion**	18	7	12	5	1
Open drains	39	22	12	--	1
Runoff control structures**	--	2	--	--	--
Runoff control measures**	69	38	15	8	--
Liming	5	1	--	--	--
Tiling	53	25	15	1	--
Mulching**	2	1	1	--	--
Animal waste facilities	3	--	--	1	--
Total erosion control and vegetative cover practices	257	111	84	19	21

*SEWRPC staff derived this information from materials collected in the SEWRPC inventory of conservation practices (see Appendix A).
**Erosion control and vegetative cover practices.

2. Cropland and Soil Loss Distribution in Washington County.*

	0-3.9% slope	4-5.9% slope	6-11.9% slope	12-More % slope
Cropland area	60.0%	19.6%	14.8%	5.6%
Soil loss	22.9%	20.5%	26.1%	30.5%
Practices** 1965-1975	54.3%	23.5%	17.8%	4.4%

*Derived from 2% Survey Data - see Appendix A and G.
**Derived from SEWRPC Inventory, above.

Appendix M: Agricultural Conservation Program (ACP) Data for Washington County.

1. Program Accomplishments, 1968-1977*

Practices		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1968-77
Erosion Control Practices												
Stripcropping	Farms	9	16	8	15	8	15	2	12	5	5	95
	Acres	227	324	334	363	180	494	3	302	107	152	2,486
	$	3,179	3,758	5,949	8,186	2,783	5,694	916	6,162	4,391	6,214	47,232
Terraces	Farms	0	0	0	0	0	0	0	0	0	0	
	Acres	0	0	0	0	0	0	0	0	0	0	
	$	0	0	0	0	0	0	0	0	0	0	
Diversions	Farms	0	6	2	4	5	3	6	8	8	11	53
	Acres	0	83	43	33	20	27	41	37	30	71	385
	$	0	1,310	886	1,523	589	1,691	3,288	3,969	3,171	6,854	23,281
Sediment or Chemical Runoff Control (Grass Waterways	Farms	13	17	11	20	7	20	14	17	19	12	150
	Acres	180	165	105	130	61	285	150	172	264	136	1,676
	$	6,071	5,064	4,136	12,030	2,785	14,870	9,699	11,812	13,975	25,033	105,475
Vegetative Cover Practices												
Permanent Vegetative Cover	Farms	22	14	9	10	5	2	0	8	8	12	90
	Acres	363	122	137	107	30	14	0	105	74	99	1,051
	$	2,553	1,200	1,407	1,214	255	175	0	2,352	1,830	3,024	14,010
Improvement of Cover	Farms	1	0	1	0	1	1	0	1	2	2	9
	Acres	8	0	10	0	9	9	0	4	12	12	64
	$	66	0	60	0	54	85	0	125	265	259	914

Appendix M (Continued)

Practice		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1968-77
Woodland Practices												
Trees or Shrubs	Farms	43	47	31	51	36	3	20	20	23	13	277
	Acres	160	109	115	196	130	10	112	72	139	47	1,090
	$	5,456	4,469	4,170	7,406	5,325	582	5,568	3,244	4,169	2,364	42,753
Timberstand Improvement	Farms	6	2	9	7	3	0	1	1	2	4	35
	Acres	47	11	81	51	10	0	6	6	11	23	246
	$	487	135	670	602	157	0	150	679	405	455	3,740
Wildlife Practices												
Wildlife Food & Habitat Improvement	Farms	11	44	17	17	25	25	0	5	21	17	182
	Acres	7	84	96	52	634	55	0	117	347	169	1,561
	$	1,015	1,944	1,639	2,793	1,773	2,249	0	177	2,071	2,680	16,341
Drainage Practices												
Open Drainage	Farms	20	15	10	7	1	7	N.A.	N.A.	1	1	62
	Acres	390	190	165	248	4	148	N.A.	N.A.	13	10	1,168
	$	7,404	3,464	4,102	7,085	149	3,181	N.A.	N.A.	375	375	26,135
Tile Drainage	Farms	6	20	7	8	4	11	N.A.	N.A.	11	1	68
	Acres	52	145	59	28	21	252	N.A.	N.A.	122	3	682
	$	1,761	5,391	2,024	950	808	13,646	N.A.	N.A.	14,053	512	39,145
Other Practices												
Reservoirs (Farm Ponds & Wildlife Ponds)	Farms	14	14	13	11	14	3	0	0	0	0	69
	Number	15	14	13	11	14	3	0	0	0	0	70
	$	6,991	6,543	9,400	7,588	9,640	1,863	0	0	0	0	42,025

Appendix M (Continued)

Practices		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1968-77
Other Practices (cont.)												
Streambank Protection	Farms	0	0	0	0	0	0	0	0	0	0	0
	Acres	0	0	0	0	0	0	0	0	0	0	0
	$	0	0	0	0	0	0	0	0	0	0	0
Erosion & Water Control Structure	Farms	0	0	0	0	0	0	0	0	0	0	0
	Acres	0	0	0	0	0	0	0	0	0	0	0
	$	0	0	0	0	0	0	0	0	0	0	0
Windbreaks, Shelterbeds, Beautification	Farms	1	0	0	1	N.A.	N.A.	0	1	0	1	4
	Acres	1	0	0	10	N.A.	N.A.	0	15	0	20	46
	$	400	0	0	8	N.A.	N.A.	0	99	0	30	537
Springs/Seeps for Livestock	Farms	2	1	0	0	0	0	0	N.A.	N.A.	0	3
	Acres	2	1	0	0	0	0	0	N.A.	N.A.	0	3
	$	482	225	0	0	0	0	0	N.A.	N.A.	0	707
Interim (winter) Cover Crop	Farms	0	3	0	0	0	0	N.A.	0	0	0	3
	Acres	0	45	0	0	0	0	N.A.	0	0	0	45
	$	0	79	0	0	0	0	N.A.	0	0	0	79
Animal Waste Storage/Diver. Facilities	Farms	N.A.	N.A.	1	6	3	1	N.A.	N.A.	0	0	11
	Number	N.A.	N.A.	1	6	3	1	N.A.	N.A.	0	0	11
	$	N.A.	N.A.	460	1,488	3,475	2,500	N.A.	N.A.	0	0	7,923

Appendix M (Continued)

Practice		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1968-77
Woodland Practices												
Trees or Shrubs	Farms	43	47	31	51	36	3	20	20	23	13	277
	Acres	160	109	115	196	130	10	112	72	139	47	1,090
	$	5,456	4,469	4,170	7,406	5,325	582	5,568	3,244	4,169	2,364	42,753
Timberstand Improvement	Farms	6	2	9	7	3	0	1	1	2	4	35
	Acres	47	11	81	51	10	0	6	6	11	23	246
	$	487	135	670	602	157	0	150	679	405	455	3,740
Wildlife Practices												
Wildlife Food & Habitat Improvement	Farms	11	44	17	17	25	25	0	5	21	17	182
	Acres	7	84	96	52	634	55	0	117	347	169	1,561
	$	1,015	1,944	1,639	2,793	1,773	2,249	0	177	2,071	2,680	16,341
Drainage Practices												
Open Drainage	Farms	20	15	10	7	1	7	N.A.	N.A.	1	1	62
	Acres	390	190	165	248	4	148	N.A.	N.A.	13	10	1,168
	$	7,404	3,464	4,102	7,085	149	3,181	N.A.	N.A.	375	375	26,135
Tile Drainage	Farms	6	20	7	8	4	11	N.A.	N.A.	11	1	68
	Acres	52	145	59	28	21	252	N.A.	N.A.	122	3	682
	$	1,761	5,391	2,024	950	808	13,646	N.A.	N.A.	14,053	512	39,145
Other Practices												
Reservoirs (Farm Ponds & Wildlife Ponds)	Farms	14	14	13	11	14	3	0	0	0	0	69
	Number	15	14	13	11	14	3	0	0	0	0	70
	$	6,991	6,543	9,400	7,588	9,640	1,863	0	0	0	0	42,025

APPENDIX M (Continued)

Practices		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1968-77
Other Practices (cont.)												
Special Conservation Measures	Farms	0	0	0	0	5	0	N.A.	N.A.	0	0	5
	Acres	0	0	0	0	125	0	N.A.	N.A.	0	0	125
	$	0	0	0	0	437	0	N.A.	N.A.	0	0	437
Program Totals	Farms	148	113	96	145	107	65	28	43	100	79	924
	Number	1,434	1,233	1,145	1,408	1,099	1,286	312	812	1,119	742	10,590
	$	35,865	33,582	34,903	50,873	28,230	46,536	19,621	28,619	44,705	47,800	370,734
Special Programs												
Low-Income Farms	Farms	0	2	0	0	0	0	0	0	0	0	2
	$	0	1,024	0	0	0	0	0	0	0	0	1,024
Pooling Agreements	Number	1	0	1	3	0	3	0	0	0	0	8
	Farms	10	0	3	10	0	9	0	0	0	0	32
	$	5,000	0	1,000	5,250	0	9,549	0	0	0	0	20,799
Long Term Agreements	Number	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	2	?	?	?	?
	$	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	2,420	4,351	4,779	8,907	20,457
Program Administration**	$	42,035	47,745	49,872	50,688	56,885	53,971	52,486	51,291	55.032	N.A.	460,005 (68-76 only)

N.A. Not available that year.
Number Indicates "acreage affected". Conversion derived from Appendix J.
* From Wisconsin ASCS Annual Reports, 1968 to 1977 (1977 data preliminary).
** Administrative costs shown are for all ASCS county programs.

2. Summary, ACP Expenditures and Costs per Acre Affected.

Practice	1968-1977 Acres affected	1968-1977 Cost shares, $	1968-1977 $/acre	1975-1977 Acres affected	1975-1977 Cost shares	1975-1977 $/acre
Stripcropping	2,486	47,232	19.00	561	16,767	29.89
Diversions	385	23,281	60.47	138	13,994	101.41
Grass waterways	1,676	105,475	62.93	572	50,820	88.85
Permanent vegetative cover	1,051	14,010	13.33	278	7,206	25.92
Improved vegetative cover	64	914	14.28	28	649	23.18
Tree/shrubs planting	1,090	42,754	39.22	258	9,777	37.90
Timberstand improvement	246	3,740	15.20	40	1,539	38.48
Wildlife food + habitat improvement	1,561	16,341	10.47	633	4,928	7.79
Open drainage	1,168	26,135	22.38	23*	750	32.60
Tile drainage	682	39,145	57.40	125**	14,565	116.52
Reservoirs	70 (number)	42,025	600.36/unit	--	--	--
Windbreaks	46	537	11.67	35	129	3.69
Animal waste facilities	11 (number)	7,923	720.27/unit	--	--	--

*Drainage practices only during 1976 and 1977.
**A variety of facility-types included.
Source: ASCS Annual Reports for Wisconsin, 1968-1977.

3. Demand Versus Supply of ACP Practices in Washington County, 1971, 1975 and 1976.

Practice	Year	# Applied	# Approved	% Approved
Erosion control				
Stripcropping	1971	18	15	83
	1975	10	8	80
	1976	21	11	52
Diversions	1971	7	4	57
	1975	15	5	33
	1976	40	10	25
Grass waterways	1971	32	20	63
	1975	27	16	69
	1976	38	25	66
Vegetative cover				
Permanent vegetative cover	1971	12	10	83
	1975	20	8	40
	1976	9	8	89
Improved vegetative cover	1971	0	0	-
	1975	1	1	100
	1976	5	3	60
Woodland				
Tree/shrub planting	1971	59	51	86
	1975	26	19	73
	1976	25	22	88
Timberstand improvement	1971	16	5	31
	1975	5	1	20
	1976	12	4	33
Wildlife	1971	26	16	62
	1975	9	4	44
	1976	24	20	83
Drainage				
Open	1971	14	8	57
	1975	2	N.A.	0
	1976	11	1	9
Tile	1971	17	8	47
	1975	4	N.A.	0
	1976	64	13	20
Other				
Reservoirs	1971	55	10	18
	1975	1	N.A.	0
	1976	2	N.A.	0
Runoff control structure	1971	1	0	0
	1975	N.A.	N.A.	-
	1976	7	0	0
Special conservation practice	1971	7	5	71
	1975	N.A.	N.A.	-
	1976	2	0	0
Windbreaks shelterbeds	1971	2	1	50
	1975	1	1	100
	1976	2	0	0

Source: Records provided by Myra Brummond and Donald Sampson, Washington County ASCS Office, West Bend, Wisconsin.